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A Framework for Service Solution Provision in Professional Service Firms: Transforming Brand Oriented People and Knowledge Oriented Processes into Superior Service Solution and Brand Equity

By

Vida Siahtiri

Tasmanian School of Business & Economics

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Declaration of Originality

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Statement of Ethical Conduct

The research associated with this thesis abides by the National Statement on Ethical Conduct in Human Research and the rulings of safety and Ethics of the Human Research Ethics Committee of the University of Tasmania.

Signed

Vida Siahtiri
October, 2014

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Signed

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Abstract

Facing high velocity markets and increasingly dynamic and powerful environmental forces, many businesses across diverse industries are increasingly trying to solve their business problems by using the services of professional service firms (PSFs) whose primary offering is the application and delivery of specialised and intensive knowledge in the form of service solutions (Jaakkola and Hakanen 2013; Kapletia and Probert 2010; Williams and Nersessian 2007). These market changes have created both opportunities and challenges for PSFs, who are providers of service solutions to industrial and business customers. To contribute to the development of theory focusing on PSFs, this study takes the view that providing superior service solutions is the critical path to enhance brand equity and to position PSFs in their markets. A superior service solution is manifested through the interplay of processes underpinned by employee-leader and customer actions, which in this study encompass people-management processes and processes underpinned by the generation and use of knowledge, which here are seen as knowledge-management processes. Focusing on how PSFs provide superior service solutions and enhance their brand equity opens up opportunities to develop unique theory addressing critical issues facing PSFs.

This study develops a theoretical framework underpinned by the solution literature and adopts literature from relationship marketing theory with a specific focus on customer cooperation in service provision process (CCSP) to develop its theory in the context of PSFs. Further, this study adopts leadership literature with the specific focus on brand specific transformational leadership theory, employee brand building behaviour theorising, and brand equity to investigate the people - and knowledge - management processes in PSFs that assist in providing superior service solution - which is quality and innovative- and create greater returns to the PSF in the form of brand equity. With its theoretical focus on people and knowledge management processes and branding this study makes a number of contributions to the service and branding literature, specifically in the context of PSFs.

First, this study contributes to the literature by examining the extent that CCSP drives a PSF's brand equity through service solution superiority. Second, this study contributes to the literature by examining the effect of leadership style, specifically brand specific transformational leadership on injecting brand values into the CCSP process. This research advances the arguments raised by Storbacka et al. (2013), Fenton and Pettigrew (2006), and Galbraith (2002) that the [service] solution is dynamic in nature, and therefore; requires a transformational leadership style (Galbraith 2002). Third, this study contributes to the literature by addressing the calls for research by Baumgarth and

Schmidt (2010), Leek and Christodoulides (2011), and Santos-Vijande et al (2013) who believe identifying internal organisational processes that generate consistent brand perceptions amongst employees is required. Fourth, this study responds to the recent call for further research by Chae (2012) on the effects of broad knowledge in knowledge intensive firms, specifically PSFs. This study contributes to the literature by examining the effect of deep and broad technical and customer knowledge on the superiority of service solutions and CCSP. Finally, this study contributes to the literature by examining and showing the effect of knowledge assimilation on different types of knowledge in knowledge intensive firms such as PSFs differs. This study extends the work of Zhou and Li (2012) by examining the differential effects of knowledge assimilation on deep and broad knowledge.

This study employed a quantitative research methodology to examine and test the theoretical framework using an online survey protocol to collect the data. In particular, three surveys were designed and administrated following a multiple-informant design (De Luca and Atuahene-Gima 2007) to a sample of PSFs operating in B2B markets in Taiwan, resulting in data being collected from 150 PSFs. To analyse the data, a three-phase analytical strategy was adopted, with the first phase focusing on descriptive, the second phase focusing on preliminary analysis, and the third phase is hypothesis testing. SPSS was used for descriptive means and Partial Least Squares (PLS) were used for preliminary analysis and hypothesis testing.

Overall, the findings show that a leader with a strong branding orientation and employees who demonstrate brand values in their daily work activities contribute strongly to the development of a PSF's cooperating with its business customers. Further, the study resolves the dilemma of the effect of CCSP on the superiority of service solutions, by showing that the effect of CCSP on the superiority of a service solution is more complex than expected. Moreover, the results show that the superiority of service solution enables the PSF to establish strong brand equity. Furthermore, it is shown that broad knowledge significantly contributes to the superiority of service solutions and CCSP. However, the effect of broad knowledge is improved if the PSF assimilates broad knowledge across the PSF. This study is among the first to focus on developing theory addressing specific issues of PSFs by identifying key antecedents and consequences of providing superior service solutions in B2B PSFs, as it is believed that PSFs require specific theory that suit their context (Fenton and Pettigrew 2006; Greenwood et al. 2005). Managers can adopt the findings to guide decisions and practices within their firms.

Chapter One

Introduction

PSFs are different from many organizations from which much current organizational theory was (and still is) derived
Greenwood et al. 2006, p.5

1.1. *Introduction and background to the research*

Faced with intensifying competition, businesses across diverse industries are increasingly trying to solve their business problems by engaging the services of professional service firms whose core asset is their specialised and intensive knowledge (Global Services Forum 2013; Jaakkola and Hakanen 2013; Kapletia and Probert 2010). The trend to access external expertise and knowledge by business customers has resulted in a growing role and increasing importance of business to business (B2B) professional service firms (PSFs) whose main service offering is service solutions (Global Services Forum 2013; Jaakkola and Halinen 2013). The growing demand for business-to-business (B2B) service solutions has led to an increasingly competitive market and a range of challenges for PSFs (Amonini et al. 2010). Some of these challenges emanate from the specific organisational characteristics of PSF and their offerings (Guzak and Rasheed 2013; Greenwood et al. 2005; Lowendahl 2000; Maister 1993; Malhotra et al. 2006).

In the marketing and management literature, a set of specific characteristics have been recognised as fundamental to the nature of PSFs, including their extensive cooperation and interaction with customers, highly educated employees, application of expert knowledge, highly customised service offerings, and the high credence quality of offerings (Jaakkola and Halinen 2006; Løwendahl 2005; Maister 1993). While the increasing demand for service solutions provided by PSFs has created opportunities for the growth of PSF and their contribution to economy, their special characteristics have resulted in challenges related to providing superior service solution and to building brand equity (Amonini et al. 2010). Further, PSFs increasingly struggle to overcome the challenges of developing their knowledge base and building distinct processes that facilitate customer cooperation in service provision (CCSP) process in their effort to provide superior service solutions (Chae 2012; Greenwood et al. 2006; Fenton and

Pettigrew 2006; Maister 1993). Facing these challenges will be fundamental to creating and maintaining their competitive market position (Amonini et al. 2010).

Maintaining a strong competitive market position has become a challenge for many firms including B2B PSFs, as a result of increasing complexity and velocity of markets (Kumar and Christodoulopoulou 2014; Engelen et al. 2014; O'Cass and Sok 2013; Probert et al. 2013; Day 2011). This challenge is especially more evident in PSFs, because of the intangibility of the service and customer difficulty in evaluating the quality of the service, even after consumption (Von Nordenflycht 2010; Jennings et al. 2006; Greenwood et al. 2005; Maister 1993). These challenges and issues bring attention to PSFs in relation to providing superior service solutions and building brand equity as two key strategic weapons for supporting the development of a competitive market position. For example, KPMG a major accounting company was offered a small contract by IBM. KPMG performed so well in providing the solution, that IBM immediately offered them a new contract. Based on their continued superior performance in solution provision KPMG has been identified by IBM as a preferred service provider (see, KPMG website, case studies for further information).

Investing in brand equity seems an appropriate approach to maintain competitive market position (Marquardt et al. 2011; Rust et al. 2004). The underlying reason is that the credibility of the service brand is a critical factor that contributes to customers' evaluation of the quality of the service and purchase decision-making (Santos-Vijande et al. 2013; Jennings et al. 2006; Brodie et al. 2006). Further, service solutions are characterised by the application of complex knowledge, and are interactively designed and customised by the PSF in cooperation with the customer (Jaakkola and Hakanen 2013; Aarikka-Stenroos and Jaakkola 2012; Greenwood et al. 2006; Maister 1993). As such, managing CCSP (Greenwood et al. 2006; Maister 1993) and developing an appropriate knowledge base may be a fundamental challenge PSFs need to face (Chae 2012). While environmental changes are driving PSFs to be more customer focused (Fenton and Pettigrew 2003), they need a leadership style that is congruent with their core market offerings, dynamic nature, and the competitive market conditions they face (Fenton and Pettigrew 2006; Amonini et al. 2010). This leadership style should assist them to enhance the credibility of their brand in the market by focusing on customers and providing a superior service solution. The positive outcomes of overcoming these challenges will manifest in providing superior service solutions, which in turn enables PSFs to enhance their brand equity and distinguish themselves in the marketplace (Amonini et al. 2010).

Providing superior service solution and developing brand equity may be a starting point for revising the existing management theory to develop a theory of PSFs,

as there are calls by scholars to develop theory that suits PSFs and their special characteristics.

1.2. Research gaps, questions , and contributions

Providing superior service solutions has become a source of increasing revenues and improving market share for both manufacturers (Fang et al. 2008; Reinartz and Ulaga 2008) and PSFs (Amonini et al. 2010). As the relevance of manufacturers providing service solutions to increase their competitiveness continues to grow, research on service solutions has to-date predominantly been couched in the context of manufacturers transitioning from providing goods to providing a combination of goods and services (Ulaga and Reinartz 2011; Fang et al. 2008; Reinartz and Ulaga 2008; Jacob and Ulaga 2008; Jacob 2006).

Given the increasing role and the importance of providing service solutions to solve business problems, studying the antecedents and consequences of providing superior service solutions in PSFs is paramount. However, except for the work of Jaakkola and Hakanen (2013), Aarikka-Stenroos and Jaakkola (2012), and Gummesson (1987), little attention has been given to identify the antecedents and consequences of superior service solutions in the context of B2B PSFs. The research focusing on service solutions provided by PSFs has largely concentrated on identifying the processes where the PSF and the customer work together during the service solution provision process (Tuli et al. 2007) or has sought to identify resources that each party brings into the service solution provision process (Aarikka-Stenroos and Jaakkola 2012). There are gaps in the current literature about how B2B PSFs overcome the challenge of providing consistently superior service solutions to their customers and achieve superior brand equity (e.g., customer based brand equity (CBBE) and firm based brand equity (FBBE)). In this study, seven key gaps are identified related to the challenges of providing superior service solutions and enhancing B2B PSFs' brand equity.

1.2.1. Research gaps

The first gap is related to the role of CCSP in driving PSFs brand equity. The literature is replete with mixed findings about the impact of CCSP on the service process and financial performance, as an important indicator of firm based brand equity (see Eisingerich et al. 2013; Peled and Dvir 2012; Ngo and O'Cass 2013, Chien and Chen 2010; Melton and Hartline 2010). Many researchers suggest that CCSP indirectly affects firm-based brand equity (e.g., financial performance). For example, Ngo and

O'Cass (2013) identify that service quality mediates the relationship between CCSP and financial performance. In service innovation literature, Melton and Hartline (2010) suggest marketability of a new service moderates the relationship between the CCSP in service innovation and the service firms' financial performance. Finally, in the project development literature where it is identified that CCSP is a prerequisite of project success, Peled and Dvir (2012) suggest characteristics of the project are determinants of the effect of CCSP on project performance. Thus, it is important to develop a deeper understanding about other possible factors that have the capacity to help explain the relationship between CCSP and PSFs brand equity.

The second gap also relates to the level of CCSP required in the service solutions provision process that ensures the provision of a superior service solution to a customer. Many scholars point out that CCSP is important to ensure solution quality and superiority (Aarikka-Stenroos and Jaakkola 2012; Töllner et al. 2011; Nordin and Kowalkowski 2010; Kapletia and Probert 2010; Brax and Jonsson 2009; Davies et al. 2007; Tuli et al. 2007; Helander and Moller 2007). On the other hand, some argue that excessive CCSP decreases the quality of the service (Ngo and O'Cass 2013; Chase 1987). Thus, it is important to identify and understand at what level CCSP results in service solution superiority and at what level CCSP has a negative effect on the superiority of service solutions. Given that CCSP is a key component of providing service solutions, it is surprising that to date no research has identified the extent that CCSP is actually beneficial in the service solution provision process.

The third gap is linked to the second gap and relates to the extent that the PSF's CCSP is facilitated by specific organisational mechanisms. Given the changing role of leaders in PSFs from controlling to promoting changes (Fenton and Pettigrew 2006), there is a gap in the current literature on identifying the effect of leadership, especially leadership that supports brand values, on the PSF's CCSP and provide superior service solutions. The credibility of the brand and the brand's values are important factors in developing relationships with customers (Amonini et al. 2010; King and Grace 2009) and CCSP is a platform where the customer has the opportunity to experience the brand's values. Given the relational nature of CCSP, it is important to understand whether a leadership style that promotes brand values affects a PSF's CCSP that in turns helps provide superior service solutions.

The fourth gap is connected to the gap three and is about identifying the role of employees in the relationship between leadership style and CCSP. Reviewing the organisational behaviour and branding literature shows that employees are important when leaders seek to implement their ideas and plans in service firms (Yoshida et al. 2013; Liao and Chuang 2007). Within the organisational behaviour and branding

literature, the role of employees in implementing leadership philosophy is well documented (Yoshida et al. 2013; Punjaisri et al. 2013; Liao and Chuang 2007; Vallaster and Chematony 2006; Bono and Judge 2003). Yet little is known about whether a leader who supports specific brand values can affect employees' behaviour and guide them to consistently behave in accordance with the brand's values. Further, there is no evidence in the literature to show whether employees brand building behaviour improves the PSFs' CCSP. Given that employees are the service firm in the customer's eyes (Lovelock and Wirtz 2011), it is important to understand what types of employee behaviour improves the PSFs' CCSP to actualise the brand promises and how these types of employee behaviour can be encouraged across the PSF.

The fifth gap is related to the application of different types of knowledge by a PSF to provide superior service solutions and improve CCSP. The literature supports the view that deep customer knowledge is necessary to understand what solution should be prepared for the customer (Miller et al. 2002, Empson 2001). Further, deep technical knowledge is necessary to understand how the service solution should be provided to solve business customer's problem (Jaakkola and Halinen 2006; Greenwood et al. 2005; Maister 1993). However, at the present there is no empirical evidence that addresses whether broad technical and customer knowledge helps or hinders a PSF's ability to provide customised service solutions, or improve the PSF's CCSP. Given the identified disadvantages of deep knowledge, such as lack of idea creation or inertia (Zhou and Li 2012; Katila and Ahuja 2002), it is important to understand the extent that broad knowledge is applicable in the PSF context that are well known for possessing deep and intensive knowledge.

The sixth gap is related to the flow of knowledge in PSFs. It is acknowledged in the literature that knowledge assimilation enables a firm to analyse, understand, and make sense of the knowledge acquired to be able to apply them in inter-firm processes (Zahra and George 2002; Cohen and Levinthal 1990). However, researchers have not addressed whether knowledge assimilation is more beneficial when a firm has broad knowledge or deep knowledge. Specifically, no research has compared whether knowledge assimilation has a differential effect on the relationship between broad customer knowledge and CCSP versus deep customer knowledge and CCSP. Further, no research has examined if knowledge assimilation affects the relationship between broad technical knowledge and service solution superiority differently than deep technical knowledge and service solution superiority. If broad knowledge is necessary to create new ideas in PSFs and most employees in PSFs are specialised in their field of activity (Maister 1993), it is important to identify mechanisms that facilitate

understanding diverse knowledge and casting it across the PSF to apply in the PSF's service solution provision process.

The seventh gap is related to the contribution of service solution superiority to the PSFs' performance. The literature has mainly focused on solutions in the context of manufacturing firms who transition from a product offering to combination of goods and services. There are a very small number of studies focusing on the relationship between service solutions and firm performance (Eggert et al. 2014). However, this body of work has largely viewed service solutions as different types of industrial services (e.g., customer service support and product service support) that mainly focused on three areas. The first area is the effect of industrial services on (1) growth and profitability of the firm (Eggert et al. 2014 and 2011), (2) the product sales volume (Antioco et al. 2008), and (3) the firm value (Fang et al. 2008). However, this small body of work has not addressed the effect of service solutions on brand equity, particularly in the form of both customer based brand equity (e.g., customer commitment) and firm based brand equity (e.g., market effectiveness). Brand equity is recognised as one of the most important intangible assets (Santos-Vijande et al 2013; Rust et al. 2004); especially in service firms (Brodie et al. 2006). Given the importance of the brand, especially for B2B service firms, it is important to understand whether service solutions that address business customers' needs improve brand equity.

1.2.2. ***Research questions***

The gaps identified above fit within three broad areas encompassing: people management processes (leadership style, employee brand building behaviours, and CCSP), knowledge management processes (deep and broad technical knowledge, deep and broad customer knowledge, knowledge assimilation), and the outcomes which are related to brand equity (customer based brand equity and firm based equity). Based on the classification of gaps as people processes, knowledge processes, and brand equity three main research questions are identified:

> ***RQ1-*** *To what extent do people management processes impact service solution superiority in PSFs?*
>
> ***RQ2-*** *To what extent do knowledge management processes impact service solution superiority in PSFs?*
>
> ***RQ3-*** *To what extent does service solution superiority impact brand equity in PSFs?*

To address these broad research questions, the following sub-research questions are advanced for each category (people management processes, knowledge management process, and brand equity).

Sub-questions for people management process:

RQ1a. *To what extent does brand specific transformational leadership influence employee brand building behaviour in PSFs?*

RQ1b. *To what extent does employee brand building behaviour influence CCSP in the PSFs?*

RQ1c. *To what extent does CCSP improve service solution superiority in the PSFs?*

Sub-questions for knowledge management process:

RQ2a. *To what extent do the levels of broad and deep technical knowledge influence service solution superiority in PSFs?*

RQ2b. *To what extent does the broad and deep customer knowledge influence CCSP in PSFs?*

RQ2c. *To what extent does knowledge assimilation affect the strength of the relationship between technical knowledge and service solution superiority in PSFs?*

RQ2d. *To what extent does knowledge assimilation affect the strength of the relationship between customer knowledge and CCSP in PSFs?*

Sub-questions for brand equity output:

RQ3a. *To what extent does service solution superiority contribute to the development of customer based brand equity in PSFs?*

RQ3b. *To what extent does service solution superiority contribute to the development of firm based brand equity in PSFs?*

1.2.3. ***Key contributions***

To address the identified gaps and research questions, this study develops a theoretical framework underpinned by the solution literature (Greenwood et al. 2006; Lowendahl 2000; Maister 1993), and adopts literature from relationship marketing theory with a specific focus on CCSP (Morgan and Hunt 1994) to develop theory in the context of PSFs. Further, it adopts leadership theory with the specific focus on transformational leadership theory (Bass and Avolio 1994) and brand specific transformational leadership, employee brand building behaviour theorising (Morhart et al. 2009), and brand equity

(Rust et al. 2004; Keller 2003). The theoretical development of research model is undertaken comprehensively in Chapter Four and also outlined briefly below in Figure 1.1. Overall, in addressing the research questions and contributing to closing the identified research gaps, this study makes six contributions to the literature.

First, this study contributes to the literature by examining the extent that CCSP drives a PSF's brand equity in the form of customer-based brand equity and firm based brand equity for the PSF through the service solution superiority. The focus here is on the extent that the service solution superiority mediates the effect of CCSP on brand equity (customer based and firm based brand equity). However, the premise here is that the effect of CCSP on service solution superiority is more complicated than explained in the literature. A non-linear relationship is argued to exist between CCSP and service solution superiority. Thus, this study advances the understanding on identifying the optimum level of CCSP that maximises the service solution superiority. This contribution is critical, because it provides insight into the dilemma faced by high contact service firms on the extent of CCSP by identifying how much cooperation with the customer is beneficial.

Second, this study contributes to the literature by examining the effect of leadership style, specifically transformational leadership on injecting brand values into CCSP to provide superior service solution. This research advances the arguments raised by Storbacka et al. (2013), Fenton and Pettigrew (2006), and Galbraith (2002) that the [service] solution is dynamic in nature, and therefore; requires a transformational leadership style. This study contributes to the literature by showing how a transformational leader who supports the brand and brand values in all inter firm processes can improve the PSFs' CCSP by actualising brand promises and providing superior service solutions. This contribution is important, because it will provide a better understanding of how PSFs can consistently represent and support brand values.

Third, this study contributes to the literature by examining the effect of transformational brand leadership on employee brand building behaviour. This study addresses the call for research by Leek and Christodoulides (2011) and Santos-Vijande et al (2013) who believe identifying internal company processes that generate consistent brand perceptions amongst employees is required. Further, this study extends the work of Baumgarth and Schmidt (2010) on the need to identify the antecedents and consequence of employee brand building behaviour. While Baumgarth and Schmidt (2010) focus on culture, this research focuses on the role of leadership that promotes brand values to encourage employee brand building behaviour. This contribution is important, because it will provide a better understanding of how employees brand building behaviours should be enhanced to apply in the development of relational

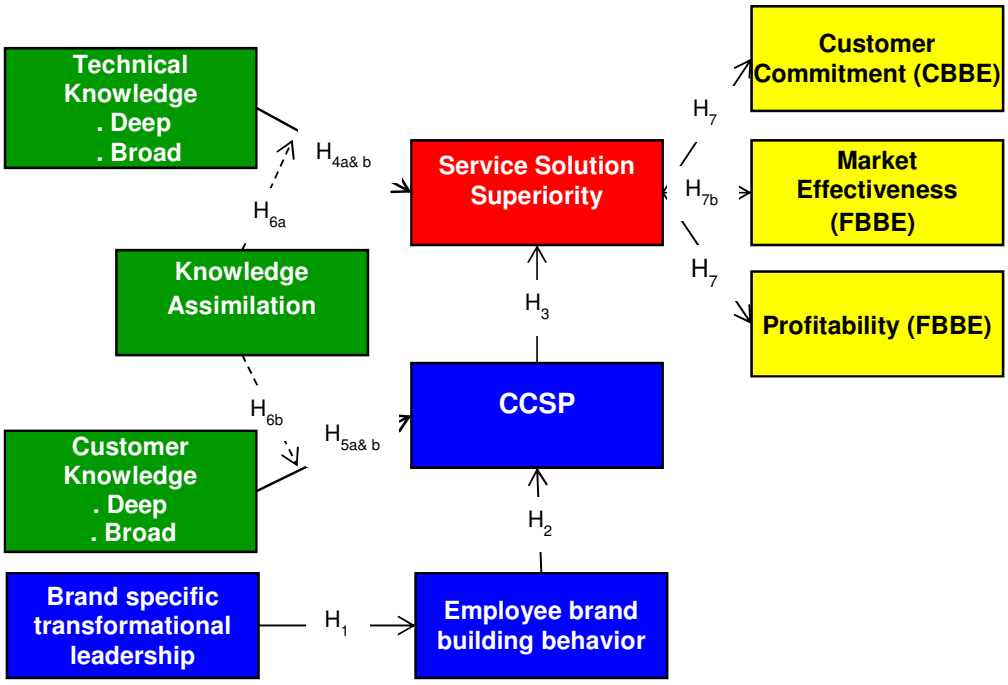
processes, such as CCSP in PSFs to actualise brand values and provide superior service solutions.

Fourth, this study contributes to the literature by examining the effect of deep and broad technical and customer knowledge on the service solution superiority and CCSP. This study responds to the recent call for further research by Chae (2012) on the effects of broad knowledge in knowledge intensive firms, specifically PSFs. This study advances the understanding about if broad knowledge in PSFs assists them to provide superior service solutions and develop CCSP. This contribution is important, because it will provide a better understanding of different effect of different types of knowledge on service solution superiority and CCSP in PSFs.

Fifth, this study contributes to the literature by examining the effect of knowledge assimilation on different types of knowledge in knowledge intensive service firms such as PSFs differs. This study extends the work of Zhou and Li (2012) by examining different effects of knowledge assimilation on deep and broad knowledge. This study advances the understanding about whether knowledge assimilation is more beneficial on the relationship between broad knowledge and CCSP/ service solution superiority or deep knowledge and CCSP/ service solution superiority. This contribution is important, because it will provide a better understanding of how knowledge should be assimilated to take the most advantage of the acquired knowledge in PSFs.

Taking on board the research questions and contributions, this study underpins these by developing a theoretical model labelled as the “B2B Professional service firms service solution model” presented in Figure 1.1. This model is developed fully in Chapter Four and provides the central focus for the thesis in an effort to articulate the relationship between PSFs’ knowledge and CCSP using specific branding activities in order to provide superior service solutions and maintain competitive market position.

Figure 1.1
B2B Professional service firms service solution model



Source: developed for this research
Note: blue boxes represent people management processes
Green boxes represent knowledge management processes
Yellow boxes represent brand equity

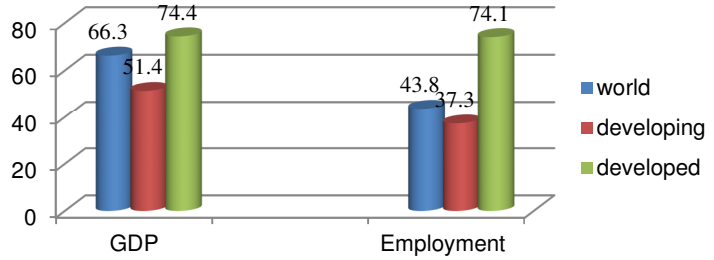
1.3. Justification for the research

During the past few years, research on services and service marketing has been considered as a high priority research area by a number of scholars, research institutes, and government bodies, such as European Research Council (ERC). For example, scholar such as, Baron et al. (2013), Kunz and Hogreve (2011) and Ostrom et al. (2010) and research institutes such as Marketing Science Institute (MSI), and ERC have all highlighted various aspects of services and services marketing as high priority areas in need of research. Given the economic importance of services, particularly service solutions offered by PSFs, research on this area is justified as it has significant practical and theoretical grounds to services marketing literature. In particular, this study is justified because of two broad reasons. The first broad reason focuses on the context (e.g., services, PSFs and Taiwan) and the second broad reason focuses on topics/themes of research (e.g., collaborative organisational structure, service solutions, service branding).

1.3.1. ***Justification of the context***

First, the service industry is increasingly identified as contributing to worldwide business growth (Global Economy Watch 2013; Javalgi et al. 2011; Ostrom et al. 2010) and is seen as a critical source of employment in the global economy (Global Services Forum 2013; Javalgi et al. 2011). The global output of the service industry is around 40 trillion USD (accounting for around 2/3^{rds} of the world output), providing employment for 1.4 billion people, which is slightly less than half of the world employment (Global Services Forum 2013). Figure 1.2 shows the share of the service industry to GDP and employment at three different levels. The blue column in Figure 1.2 shows the share of service industry in GDP and employment at the global level, while the red and green columns show the same features in developing and developed countries during 2011 respectively. As shown in Figure 1.2, 66.3% of the total global GDP is the output of service industry activities. Figure 1.2 indicates the contribution of services to many economies (both developed and developing) is around 74% and 51.4% of the total GDP for developed and developing economies respectively. Figure 1.2 illustrates that the service industry is crucial to employment worldwide, as 43.8% of total world employment is the result of economic activity in service industries. The share of employment for developed and developing economies is 74.1% and 37.3%, respectively (Global Services Forum 2013). Given the important contribution of the service industry to employment and GDP in many economies, studying how service firms such as PSFs can achieve superior brand equity, and enhance their contribution to not only individual economy, but the world economy is a priority and justifies this study.

Figure 1.2
Share of service sector in GDP and employment in 2012



source: Global Services Forum 2013

Second, one of the main reasons for the growth in service industry output and the ability to contribute to employment is the increasing demands for service solutions offered by PSFs (Global Services Forum 2013; Corrocher et al. 2013; Williams and

Nersessian 2007). The professional services industry includes accounting, advertising and marketing, architecture, management consulting, engineering, IT, legal and scientific research services and others. In the literature, PSFs are known by key features related to their extensive interaction with customers, highly educated employees, highly customised knowledge based service, and high credence quality (Jaakkola and Halinen 2006; Løwendahl 2005; Gummesson 1978). Economic indicators show that PSFs are 'one of the fastest growth sectors in many economies and a primary source of growth for both developed and developing countries (Global Services Forum 2013; Corrocher et al. 2013; McKinsey Global Institute 2012; Javalgi et al. 2011; Amonini et al. 2010; United Nations, 2004). Given the increasing importance of PSFs, studying PSFs is justified.

Third, the context of study is justified because it focuses on Taiwan. Reports published by a range of international institutes on Taiwan show that the business environment, economic situation, and contribution of service firms in the Taiwanese economy is significant (Forbes 2014; The World Factbook 2013; ADB 2012). Further, Taiwan has a very comprehensive and modern professional service sector (Foreign Commercial Service, U.S 2013), which justifies examining the research model using data from Taiwanese PSFs.

1.3.2. Justification of the topics/themes

First, a recent research priority announced by MSI (Marketing Science Institute, 2012-2014) focuses on understanding the effect of organisational structure and marketing capabilities on business performance. In this sense, the focus of research proposed by MSI is designing optimal collaborative structures. This study addresses the collaborative organisational structure issue by scrutinising the optimised effect of CCSP on service performance and knowledge assimilation, which works through service solution superiority. Further, this study addresses the development of internal brand equity, as a marketing capability with the focus on branding leadership philosophy and employee brand building behaviour to develop collaborative process in the service solution context. Thus, this research is justified as it addresses one of the research priorities announced by MSI during the period of 2012-2014.

Second, this research highlights the importance of branding and branding philosophy in service firms, especially in the PSF B2B context. For many years, branding in B2B has been viewed by business marketers as largely irrelevant (Leek and Christodoulides 2012). However, its importance is increasingly accepted by scholars and practitioners in the B2B context (Santos-Vijande et al 2013; Leek and

Christodoulides 2012; Coleman et al. 2011; Backhaus et al. 2011; Juntunen et al. 2011; Baumgarth and Schmidt 2010; Ballantyne and Aitken 2007). Leek and Christodoulides (2011) following a review of the branding literature in the B2B context, provide a future research agenda and research directions. The agenda they introduce focuses on internal company processes to generate consistent brand perceptions amongst employees, as well as the role of the brand in improving relationships between B2B firms and their customers. This study addresses the research directions proposed by Leek and Christodoulides (2011) by identifying mechanisms that contributes to improving internal branding and developing CCSP as a relational process. Thus, this study is justified as it addresses a research need in B2B branding.

Third, beneficial cooperation between the service firm and the customer is a key research agenda proposed by Ostrom et al. (2010). This study looks at service solution superiority and brand equity as a benefit the customer and the PSF can obtain from their cooperation. Therefore, this study is justified as it addresses a major research agenda that has been the focus of attention in recent years on the cooperative process between customer and the service firm.

Fourth, the majority of research on solutions has been conducted in the context of manufacturing firms transitioning from product to service offerings (e.g., Eggert et al. 2011; Töllner et al. 2011; Kapletia and Probert 2010; Pawar et al. 2009; Kindstrom and Kowalkowski 2009; Matthyssens and Vandenbempt 2008; Tuli et al. 2007; Davies et al. 2007; Oliva and Kallenberg 2003). In this context, researchers have sought to define a solution and understand the concept of service solution and the process of service solution provision (Töllner et al. 2011; Kapletia and Probert 2010; Tuli et al. 2007) or necessary business models for solution providers (Storbacka 2011; Nenonen and Storbacka 2010). Problematically, Jacob and Ulaga (2008) argue that the literature focusing on solution is largely descriptive or normative in nature being based on in depth interviews and case studies. Interestingly, six years after their observation research on solution is still descriptive or normative (e.g., Gebauer et al. 2013; Jensen et al. 2012; Aarikka-Stenroos and Jaakkola 2012; Töllner et al. 2011; Kapletia and Probert 2010). This type of research methodology (e.g., case study and interviews) leads to problems of generalisability, as Jacob and Ulaga (2008) note. Therefore, this study is justified as it applies other research methods to increase the generalisability of findings in the solution context. Further, at present, the literature still suffers from a lack of empirical evidence on solution (Jacob and Ulaga 2008), especially service solutions in the PSF context (Chae 2012). Given the increasing economic importance of PSFs (Amonini et al. 2010; Greenwood et al. 2006), research on solutions and specifically the PSFs' solution provision process warrants more attention (Aarikka-Stenroos and Jaakkola 2012).

1.4. Definitions of key constructs

Given the literature is replete with diverse definitions of the key constructs of this research (e.g., service solution, CCSP, and customer based brand equity), it is important to ensure the key definitions pertaining to specific constructs of interest are presented clearly early on in the study. Table 1.1 identifies the key constructs employed in the research model, with only definitions that are specifically developed for this research. The key constructs of interest that are developed for this research are: deep and broad technical knowledge, superior service solution, CCSP, and customer based brand equity. Definitions for these constructs are developed here for several reasons. First, there are no specific definitions for the key constructs in the context of PSFs (e.g., service solution). Second, there are different definitions for the same construct in the literature that need more clarification to suit in this study (e.g., CCSP process, deep technical knowledge and customer based brand equity). The foundation and development of the definitions of the key constructs employed in the research model presented in Table 1.1 are fully discussed in Chapter Four, where theory and hypotheses are developed.

Table 1.1

Construct definitions

Deep technical knowledge	is the degree of detail and complexity of a PSF's expert knowledge of the technical and expertise field of operation.
Broad technical knowledge	is the degree of heterogeneity and dissimilarity of a PSF's expert knowledge of the technical field of operation.
Service solutions	is a customised service to meet customer's non-standardised needs.
Service solution superiority	is the level of quality and innovativeness of customised service solution provided to customers to meet customer's non-standardised needs.
CCSP	is the extent the PSF works with customers during the design, development, and delivery of service solutions
Customer based brand equity	is the degree that customers are committed to the PSF.

1.5. Methodology

To examine the relationships between the constructs of interest in Figure 1.1 and test the hypotheses (see Chapter 4), this study employed a quantitative research methodology and used survey protocol as the means of data collection. In particular, three surveys were developed and administrated following a multiple-informant design (De Luca and Atuahene-Gima 2007) to a sample of PSFs operating in B2B markets in Taiwan. Using a multiple-informant design decreases the effect of common method bias and ensures a more accurate and higher quality data (O'Cass et al. 2014; Damanpour et al. 2009). Quantitative research is an appropriate research methodology to test the hypotheses that underpin the theoretical framework developed in this study (Neuman 2012). To collect the data, an online administration method was chosen allowing respondents to complete the survey at their convenience. The use of online surveys is acknowledged in the literature for their relative low cost and fast response rates (Van Selm and Jankowski 2006).

The surveys were designed by using and modifying existing measures in the literature. For constructs that have not been measured in the current literature yet, new measures were developed following a two phase process. First, item generation and the second, item refinement (reduction) (Burne 2008; Churchill 1979) was undertaken. The purpose of item generation was identifying all potential items that tap dimensions of the definition of the construct (Burns et al. 2008). The refinement stage involved examination of face validity of measures, which was undertaken by asking experts in the field to access the generated items. Following this process, the surveys were pre-tested to obtain the final version of surveys.

To analyse the data, a three-phase analytical strategy was adopted, with the first phase focusing on descriptive, the second phase focusing on preliminary analysis, and the third phase is hypotheses testing. SPSS is used for descriptive means and Partial Least Squares (PLS) was used for preliminary analysis and hypothesis testing. In particular, Smart-PLS v.2 was used to examine the adequacy of outer measurement models for the preliminary analysis stage and the predictive relevance of the inner structural model for the hypotheses testing stage.

1.6. Outline of the report

The outline of this thesis conforms largely to the generally adopted presentation of doctoral dissertations. The outline is premised upon the structure and guidelines proposed by Perry (1998). This study is organised into seven chapters.

This chapter, Chapter One, is the introduction chapter and serves as an overview of the study. Chapter One provides the background of the study and offers contribution and justification for the study. Further, it identifies the methodological and analytical approaches adopted to implement the research. Furthermore, the structure of the study is outlined, constructs and terms are introduced and defined, and delimitations of the study are discussed.

Chapter Two, specifically reviews the literature on CCSP in service firms. As the extent of CCSP in service solution provision is one of the core concepts of the research, it was deemed necessary to review the related literature to gain a detailed understanding of the state of the literature on CCSP, measurement, and the research methodology previous researchers employed. Previous research on CCSP process provides foundation to develop theory in Chapter Four.

Chapter Three, underpins the literature review on the other core concepts of the research, which is service solutions. Chapter Three specifically focuses on the solution and service branding literature and discusses brand specific transformational leadership, and employee brand building behaviour in the service branding literature. The literature review in Chapter Three is used as the foundation to develop the theory and hypothesis presented in Chapter Four.

Chapter Four presents the development of the theory and the relationships between constructs to arrive to the research model called “B2B Professional service firms service solution model” and hypotheses. Theory development and hypotheses are based on the literature review undertaken in Chapters Two and Three. The predicted paths are theoretically justified and helped answer the research questions.

Chapter Five covers the research design, serving as a detailed blueprint that guides the implementation of the research. Chapter Five discusses in detail the adoption of the research paradigm, data collection method, and data analysis techniques. Further, it describes the process of measurement development and sampling plan. Research tactics are adopted from the research design process outlined by Aaker, Kumar and Day (2004) and Neuman (2011).

Chapter Six presents the results of the analyses of the data in three phases. The first phase, presents results of descriptive analysis, the second phase presents the preliminary analysis in terms of the psychometric properties of the measures. The third phase, describes the results testing the theoretical model and hypotheses.

Chapter Seven discusses in detail the findings of the study, specifically focusing on the interpretation of the results and the emergent findings. Theoretical and practical implications are drawn from the discussion, along with the limitations of the study and

implication for future research in the domain. Finally, the study concludes with the appendices and a list of references.

1.7. *Delimitations of scope*

Although this study provides valuable insights, some potential delimitation should be considered. These delimitations explicitly define the boundaries of the research, which limit the generalisability of the findings. These boundaries are outlined below:

First, this study focuses on CCSP in B2B PSFs from the firm perspective. Therefore, the findings may not be applicable to CCSP from customer perspective and in product setting or in B2C services. Second, the study was conducted in Taiwan, which is a developed economy and service centred. The findings of the research should be applied in other developed economies with care and developing countries with caution. The findings should be applied in those developed countries that are culturally different from Taiwan with caution. The dominant culture in Taiwan is a collectivist culture (Chiou and Chang 2009), thus it might not be applicable in countries with individualism as a dominant aspect of culture. Further, developing economies may not have the same infrastructure or service priority as Taiwan. Third, the study is limited as it was designed as a cross-sectional survey, while building brand equity can be a lengthy process.

1.8. *Conclusion*

With increasingly high velocity markets (Kumar and Christodoulopoulou 2014; Engelen et al. 2014; O'Cass and Sok 2013; Probert et al. 2013; Day 2011) and with environmental forces driving many industrial and B2B firms to purchase service solutions (Jaakkola and Hakanen 2013), PSFs face both opportunities and challenges. As firms whose sole focus is the provision of service solutions to industrial and B2B customers understanding how to face the challenges and take hold of the opportunities is a critical issue. Facing an increasingly challenging environment and constantly evolving business markets some scholars have argued that PSFs are different from other types of organisations because of their uniqueness setting and focus, thus they require new theory or revision of existing theories to suit their unique nature (Fenton and Pettigrew 2006; Greenwood et al. 2005).

This study is among the first to focus on developing theory addressing specific issues of PSFs by identifying key antecedents and consequences of providing service solutions in B2B PSFs. In the domain of PSFs, many issues remain unaddressed,

especially related to the domain focusing on the interplay and convergence of CCSP, service solutions and the foundational processes embedded in people, knowledge, and brand equity. This domain, however, seems an appealing starting point to develop theory focusing on PSF and the delivery of service solutions. To add to the ongoing discussion this study picks up on the point made by Fenton and Pettigrew (2006, p. 102), that "*Professional services belong to a unique subset of organisations…, which require special theories of their own*". While the contribution of past research is acknowledged, it is recognised here that much remains to be learned about PSFs and service solution and continuing investigation, seems warranted.

Chapter Two

Content Analysis of Customer Cooperation in Service Provision

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Content analysis is an observational research method that is used to systematically evaluate the symbolic content of all forms of recorded communications. These communications can also be analyzed at many levels (image, word, roles, etc.), thereby creating a realm of research opportunities.

Kolbe and Burnett, 1991, p. 2432

2.1. ***Introduction***

The role of the customer in the service provision process has been the focus of considerable attention among service business practitioners and services marketing academics (Chathoth et al. 2014; Wirtz et al. 2013; Peled and Dvir 2012; Brodie et al. 2011; Kumar et al. 2010; Van Doorn et al. 2010; Payne et al. 2008). The service provision process refers to the sequence of activities through which a service is designed and delivered to the customer (Lovelock and Wirtz 2011). To explore and identify the customers' role and responsibility in service provision, researchers have conducted studies using a range of theoretical platforms and methods, and applied a range of terms to describe customers and service firms' role in the service provision process. Despite the fact that some researchers have sought to use specific terms to define the customers' role in the service provision process, there is still debate in the literature about the roles customers' play in the service provision process. There is a high degree of divergence at best, and ambiguity at worst in many of the terms, definitions and measures used in this area (Brodie et al. 2011; Kumar et al. 2010).

Chapter Two sets out to provide a comprehensive analysis to further our understanding of research focusing on customer cooperation in service provision through a content analysis of the literature. The term customer cooperation in service provision (CCSP) is used to examine and capture research related to concepts such as customer engagement, participation, co-creation, involvement, and integration, which are key concepts in the literature related to the roles and responsibilities of customers in service provision (see, Brodie et al. 2011). The term cooperation is applied to capture a range of terms applied in the literature to explain the customers' role in the service provision process. The underlying reason for this choice is that "cooperation" refers to

the process of working or acting together to maximise the mutual benefit of the parties (Morgan and Hunt 1994; Larson 1994; Landeros and Monczka 1989). Further, in the services marketing literature, many researchers who examine the role of the customer in service provision, focus on the extent that service provider and customer working together to obtain some desired outcome for both parties (e.g., Menon et al. 2005). Moreover, in B2B relationship settings, Morgan and Hunt (1994) specifically use customer cooperation to represent the supplier and customer working together in business relationships.

The content analysis here focuses on identifying and categorising specific characteristics of the literature related to customer cooperation at several levels. The results of the content analysis help present a detailed assessment of the state of the literature, as well as identifying new realms of research opportunities (Athanasopoulou 2009; Arnould and Thompson 2005; Kolbe and Burnett 1991). This content analysis specifically evaluates issues such as the number of studies published, outlets where studies have been published, methodological and analytical characteristics, and the focus of empirical and theoretical work. Through the content analysis, specific streams of research in CCSP are identified and the domain of the literature is surveyed and discussed.

2.2. The Importance of customer cooperation in service provision process

According to many researchers, customers are an integral part of the service provision process, and in a general sense, they may take on some responsibilities to provide the service (e.g., Aarikka and Jaakkola 2012; Peled and Dvir 2012; Lee et al. 2012; Bendapudi and Leone 2003; Lovelock and Young 1979; Chase 1978). In some types of services, especially professional service firms (characterised as highly customised, highly interactive and knowledge intensive business services), customer cooperation is a key determinant of the success or failure of the service (Aarikka-Stenroos and Jaakkola 2012). The underlying rationale supporting this view is that customers are required to share their insights and resources with the service firm (e.g., information about their needs, or their knowledge and skills) and take on some responsibility through the service provision process (Storbacka 2011; Moeller 2008; Bettencourt et al, 2002; Bitner et al. 1997). The responsibilities customers take on through the service provision process and the resources customers invest or provide in the service provision process have led some researchers to consider customers as partial employees of service firms or co-producers of the service (e.g., Bendapudi and Leone 2003; Bettencourt et al, 2002; Lengnick-Hall 1996; Larsson and Bowen 1989; Mills and Moberg 1982).

Customer cooperation in the service provision process is argued by some researchers to be important, because they contend it affects both the service quality and customer satisfaction, which in turn drive the service firms' market and financial based performance (Grönroos and Voima 2012; O'Cass and Ngo 2011; Bendapudi and Leone 2003; Bettencourt et al, 2002). Moreover, it is argued that customer cooperation in the service provision process assists service firms to increase their productivity (Grönroos and Voima 2012; Lovelock and Young 1979). For instance, according to some researchers superior market and financial performance stemming from customer satisfaction with the service, may guarantee long-term success of the service firm (e.g., Grönroos and Voima 2012; Payne et al. 2008). In this sense, customer cooperation in the service provision process results better outcomes for service firms (e.g., customer based brand equity) (Grönroos and Voima 2012; Payne et al. 2008).

The growing importance of CCSP process has motivated some researchers to provide an overview of the literature on CCSP. These works have sought to identify and review a range of issues, including the dimensions of CCSP, the terms used to explain CCSP, and explore the extent and role of the customer in CCSP. For example, Bendapudi and Leone (2003) classify research from 1979 to 2000, with a singular focus on co-production. Others such as, Athanasopoulou (2009), analyse the literature on relationship quality without considering customer cooperation in the service provision process. More recently, Brodie et al. (2011) provide a comprehensive review of the literature, focusing on the conceptualisation of the customer engagement. The most recent systematic review of the literature on CCSP focuses on the outcome of customer cooperation (Mustack et al. 2013). However, in this area work examining the extent of CCSP and the overlap among the various terms applied by researchers has not been the focus of detailed analysis.

Given that customers are playing an increasingly important role in the service provision process and given the growing attention on this topic by scholars, a comprehensive review of the literature in the form of a content analysis to identify the role and responsibilities of customers in the service provision process appears necessary. This content analysis will provide a greater understanding of the state of the literature across the broad domain of CCSP. Moreover, a content analysis may assist to provide a better understanding of what, if any, areas have been ignored by researchers in the context of CCSP. A content analysis of the literature helps identify research streams in this area to establish a foundation for further theory development and research (Athanasopoulou 2009; Kolbe and Burnett 1991).

2.3. Methodology for the classification

In this section, the literature is analysed and classified to gain a perspective on empirical research and theoretical developments relevant to the work focusing on CCSP. To provide an in-depth perspective of this body of work a content analysis is a useful tool to provide a foundation for research for a number of reasons. Kolbe and Burnet (1991) argue that a content analysis provides two contributions. First, it provides an empirical starting point for initiating new research investigating the characteristics and consequences of specific communications. Second, it has the potential to provide a foundation comparing research methods to intensify the validity of the results obtained in the literature.

The content analysis performed here, is based on the classification of research following the suggestions provided by Kassarjian (1977). Following Kassarjian, a database (e.g., a list of relevant research) was developed using specific reputable academic databases such as ScienceDirect, Ebsco, Wiley online library, Emerald, Google Scholar by focusing on research on CCSP between the years of 2000-2013. The main reason for selecting this timeframe is that over this period, marketing researchers have paid more attention to integrating customers in the service provision process. Further, in this period, researchers increasingly focused on capturing customers' resources (such as their knowledge and skills) to improve the quality and the acceptability of the offering the service firms provide (see also Brodie et al, 2011; Gronroos 2011; Payne et al. 2008; Prahalad and Ramaswamy 2004; Bendapudi and Leone 2003).

Further, Bendapudi and Leone (2003) analyse published research on customer participation in service production across the period of 1979-2000. Their analysis shows most studies were largely conceptual, with only three empirical studies being published in that period. The content analysis conducted by Bendapudi and Leone (2003) provides insights into the development of theory and research in the area of CCSP over the previous decade and as such, it was decided to focus on the period subsequent to their work.

To create the database, a range of search terms was applied focusing on terms identified in published work used to explain or capture the broad domain or the notion of CCSP. Terms such as, *customer involvement, customer participation, customer integration, customer engagement, customer co-production*, and *customer co-creation* were applied in the search. Other terms such as "*joint work*" (Menon et al. 2005) and "*interactive services*" (Bolton and Saxena-Iyer 2009) were also identified through the content analysis, but they are not used to any large degree in the literature, as these terms are found in two studies respectively.

The database is based on international refereed journals, as they are argued to be the most appropriate publications for investigation (Papastathopoulou and Hultink 2012). To choose articles for inclusion, the first decision made was whether an article dealt with CCSP in the service provision context. For an article to be included in the content analysis, the paper had to pertain to any aspect of customer cooperation in service firms, such as provision of solutions, service innovation, new service development, service recovery, service brand development, and online services. The focus for the selection of articles was on both empirical research and conceptual studies on CCSP. Following the recommendation provided by Athanasopoulou (2009), practitioner (non-academic) studies were excluded because they do not have the same characteristics as academic journal articles such as objectives and methodology. Thus, they cannot be analysed using the same analytical methodology (Athanasopoulou 2009). Another criterion applied for selecting studies was whether they were available in English and reasonably accessible (Mustak et al. 2013; Nel et al. 2011; Albaum and Peterson 1984).

Given that the objective of the content analysis was to survey and analyse the CCSP literature, several classifier variables were used to achieve this objective. They included:

1. General characteristics of articles (e.g., year of publication, publication outlet, and knowledge domain),
2. The research focus (e.g., research topic),
3. The term used to address/examine customer cooperation in service provision.

Several additional classifiers were applied for the studies reporting empirical studies. These were:

1. Single versus multiple respondents,
2. Business-to-business (B2B) versus business-to-consumer (B2C) services,
3. The country that data are collected,
4. The focus of research on special sector (e.g., financial services, telecommunication),
5. Definitions of the terms are used to describe CCSP.
6. The measures applied to examine CCSP.
7. Antecedents, consequences, and findings in CCSP domain.

2.4. The content analysis results

The analysis was undertaken by identifying the number of CCSP articles and their distribution over time and in different journals, categorisation of research based on

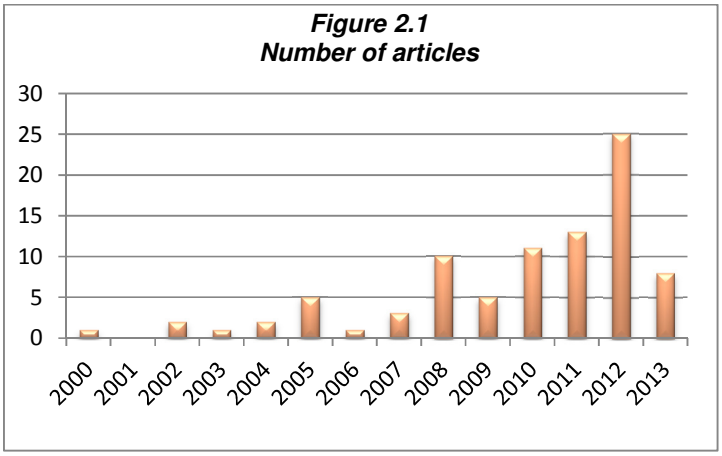
market, industry, and topics focusing broadly on CCSP. This analysis also examined study design, method of data collection and type of respondents. Further, the content analysis also focused on terms used in research to define CCSP, similarities or differences in research streams addressing CCSP, measures used to determine CCSP, and the findings of studies identified as part of the search and analysis. The findings of the content analysis are presented across Sections 2.4.1 to 2.4.9.

2.4.1. *Number of CCSP articles and their distribution*

Given the importance of services in most economies (both developed and developing), as well as the significance of CCSP in service firms, an a-priori expectation was adopted that research on customer cooperation in the context of services should have grown over the last 14 years since the limited content analysis by Bendapudi and Leone (2003) on customer co-production. The underlying rationale for this expectation is that both services in general and CCSP in particular has received a great deal of attention from researchers since the beginning of this century (see Brodie et al 2011; Gronroos 2011; Payne et al. 2008; Prahalad and Ramaswamy 2004; Bendapudi and Leone 2003).

The a-priori expectation of a growing body of research is supported by the information presented in Figure 2.1. This figure shows that the number of studies on CCSP has been increasing since 2000, from one paper in 2000 reaching to as high as 25 studies in 2012. Figure 2.1 also indicates that topics addressing CCSP issues have received more attention since 2005 with five studies published in that year. However, a reduction in the number of published studies through 2006, 2007, and 2013. In the first four years of the review period 2000 to 2004, a limited number of studies were published. Moreover, Figure 2.1 indicates that the number of published studies doubled between 2008 and 2012. This provides strong support for the increasing importance of CCSP, because researchers have given greater attention to this area. Further, the increase in the numbers of published studies can be interpreted as the evidence that knowledge in the area of CCSP is progressing. However, the number of published studies on CCSP during 2013 declined in comparison to previous years. As shown in Figure 2.1, the same reduction in the number of published studies on CCSP occurred during the period of 2006-2007. However, the number of studies published on CCSP after 2007 increased. It is possible that after 2013 researchers developed new ideas and new streams of research on CCSP.

Figure 2.1
Number of articles



The importance of CCSP may also be highlighted when an increasing number of studies are published in highly rated, credible (top tier) journals. Table 2.1 presents information that addresses the studies outlets for work published focusing on CCSP. It shows that studies have been published in 38 different peer reviewed/refereed journals. Many of these are high level, very credible journals, ranked as A* or A[1] (e.g., Journal of Marketing, Journal of Service Research, Journal of the Academy of Marketing Science, Journal of Business Research, Industrial Marketing Management and the like). Table 2.1 shows that 13.7% of studies have been published in the Journal of Service Research, 9.1% in the Journal of Marketing and Industrial Marketing Management, 8.04% in the Journal of Business Research, 6.8% the Journal of Academy of Marketing Science, and 4.5% in the Journal of Service Management. The information presented in Table 2.1 also shows that around half of the studies have been published in the above-noted journals (50%). Interestingly, more than two thirds of the identified journals have published only a single study on CCSP themes.

Analysing the literature (and outlets) on CCSP shows that CCSP has interdisciplinary characteristics. This view is further supported by the fact that articles appear in a variety of journals that are context specific (e.g., psychology), but covers different disciplines (e.g., marketing, management). For instance, Psychological Review publishes studies in the psychology context, but covers different disciplines in psychology, such as consumer psychology. The other example is Management Decision, a journal that publishes studies within the management disciplines, but covers different areas in management such as services marketing. The last example here is Decision Sciences, a journal that publishes studies on decision-making, but covers different areas such as logistics, information system, and sales and marketing. In the period covering this content analysis, the journals indicated in Table 2.1 published

[1] According to the Australian Business Deans Council ranking.

studies on service research and service management, services marketing, service innovation and innovation management, psychology, marketing, strategy and management, business strategy and other areas.

Table 2.1
The publication and number of studies published in each journal during the research period 2000-2013

Journals	No. of Articles	Journals	No. of Articles
Journal of Service Research	12	Decision Sciences	1
Journal of Marketing	8	Journal of Interactive Marketing	1
Industrial Marketing Management	8	Journal of Management	1
Journal of Business Research	7	Journal of Marketing Management	1
Journal of the Academy of Marketing Science	6	Journal of Product & Brand Management	1
Journal of Service Management	4	Journal of Retailing and Consumer Services.	1
Journal of Strategic Marketing	3	Journal of retailing,	1
European Management Journal	2	Journal of Services Marketing	1
Journal of Consumer Behaviour	2	Journal of Strategic management	1
Management Decision	2	European Journal of Business and Management	1
Marketing theory	2	Management Research Review	1
California Management Review	2	Managing Service Quality,	1
The Journal of Marketing Theory and Practice	2	Journal of Hospitality & Tourism Research.	1
Journal of Business-to-business Marketing	2	Production and operations management	1
British Journal of Management	1	R&D Management	1
European Journal of Innovation Management	1	Schmalenbach Business Review	1
Information and Software Technology	1	Services Marketing Quarterly	1
International Journal of Logistics Management	1	The Service Industries Journal	1
International Journal of Project Management	1	International Journal of Quality and Service Sciences	1
Tourism management	1	International Journal of Hospitality Management	1
	TOTA		**87**

2.4.2. ***Categorisation of research based on market, industry, and topics on CCSP***

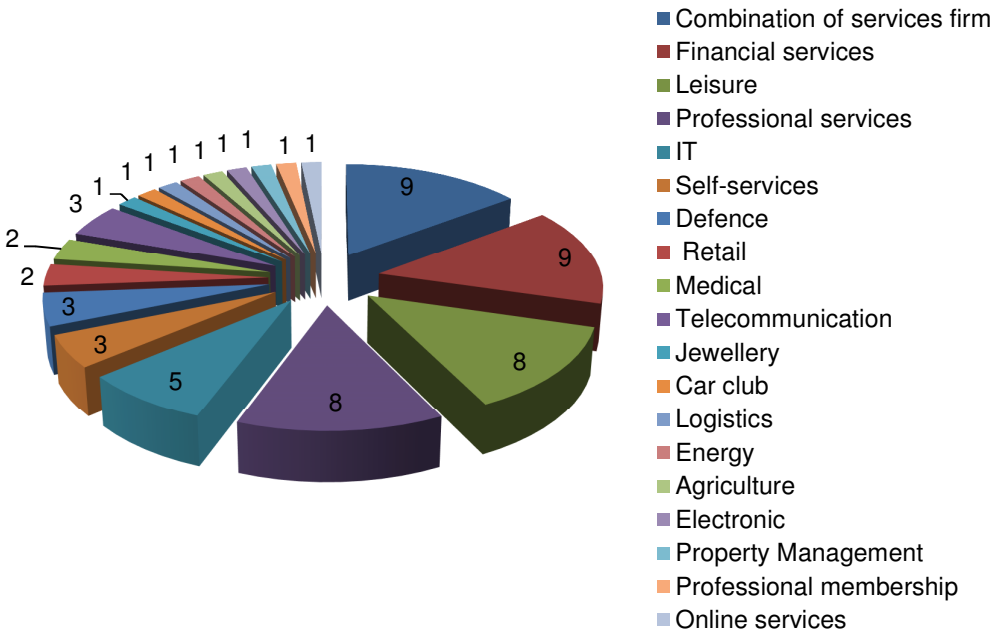
An analysis of the published work focusing on market, industry and identifying the type of study (empirical versus conceptual) was undertaken. The analysis indicates that the

majority of studies on CCSP have been concentrated in the B2C market, and less attention has been paid to the B2B market context, with the percentage of studies in B2C is 78% with 22% in B2B. Further, the geographic distribution of studies on CCSP (for those studies that report where the study was conducted) indicates that studies have been conducted in North America (13 studies), followed by Europe (12 studies), and Asia and Oceania (each with 10 studies). In terms of the number of conceptual and empirical studies, the analysis indicates that the number of empirical studies was slightly higher, with 57 studies and 30 conceptual studies.

After analysing and classifying the identified studies, based on their focus on market, country contexts, and focus (e.g., empirical versus conceptual), they were analysed based on their service sector. It appears that researchers have targeted a diversity of service sectors (e.g., telecommunication, professional services). The analysis indicates that most studies focus on a single sector within the service industry, and only eight studies using multiple sectors in the service industry (e.g., Hakanen and Jaakkola 2012; Reay and Seddighi 2012; Vivek et al. 2012; Ngo and O'Cass 2013; O'Cass and Ngo 2011; Ramani and Kumar 2008; Skjølsvik et al. 2007; Menon et al. 2005). Studies that gathered data from firms across multiple service sectors generally argue that their focus on the multiple sectors enhances the generalisability of findings (e.g., Ramani and Kumar 2008).

The service sectors studied by researchers during the period 2000 - 2012 are presented in Figure 2.2. Because of the fact that some studies are based on multiple services sectors, the total numbers of services sectors are slightly higher than the total number of studies. Further, some researchers who use multiple service sectors do not identify the sectors (e.g., Ngo and O'Cass 2013; Vivek et al. 2012; Hakanen and Jaakkola 2012; Ramani and Kumar 2008; Menon et al. 2005), and such studies only report that their sample included diverse service firms. Figure 2.2 shows that there has been clearly a bias toward investigating financial services (10.03%), professional services (8.1%), leisure (8.1%), and IT (5.77%).

Figure 2.2
Distribution of studies on different service firms



2.4.3. ***Research topics and design***

As a part of the content analysis, studies were examined to identify the focus of the research. This examination focuses specifically on the focal topics and main constructs. The results of the analysis presented in Table 2.2 provide information about the specific topic in each study. As shown in Table 2.2, the majority of articles published between 2000 and 2013 focus on defining the terms used to explain different aspects of CCSP, identifying the dimensions of CCSP, and developing scales to measure CCSP (this constituted around 24% of the studies). The second topic that researchers have given more attention to is the effect of CCSP on different types of firm performance (constituting 19.4% of the studies). Further, examining the value via experience, service quality, perceived value, and value in networks is also prominent topics (with around 12.9% of the studies). Researchers have also directed attention towards other research areas, including topics such as innovation (constituting 8.3% of the total number of studies), and within this area new service development, service design, and innovation in networks have been studied. Other further areas that received attention were outlined in Table 2.2.

Table 2.2
The focus of research: Topic CCSP

Topic	No. of articles	%	Topic	No. of articles	%
Definitions of CCSP • Behaviour • Cognitive • Emotion • Scale development • Differences between terms	26	24	Strategies • Customer focused • Architecture • Strategic models	4	3.8
Firm Performance • Service performance • Firm performance • Employee satisfaction • Efficiency	23	19.4	Project • Project development • Project solution • Information sharing	4	3.8
Value • Perceived value • Perceived service • Value network • Consumer experience • Service quality	14	12.9	Service recovery	3	2.77
Innovation • New service • Service design • Partnership • Customers' resource	9	8.3	Managing CCSP	3	2.77
CCSP capability • Process • Customer	9	8.3	Culture and shared meaning	3	2.27
Customer empowerment • Communication channels • Communities • Learning • Self- production	6	5.5	Analytical models applied in CCSP	1	0.92
Total				**108**	**100**

2.4.4. Type of respondents and method of data collection

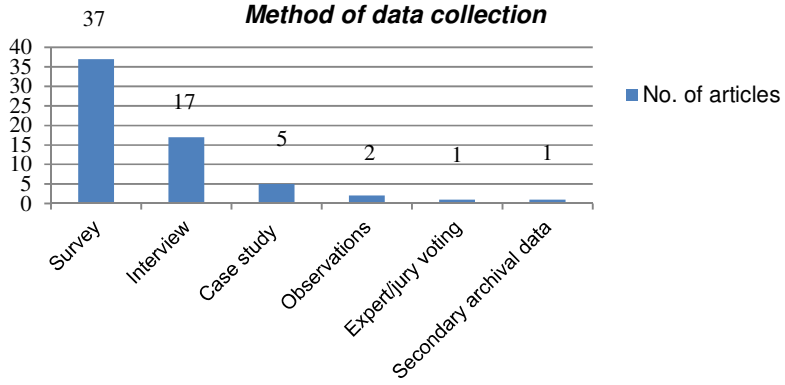
This section presents the analysis of sample specifications and analytical techniques used by researchers in the CCSP literature. The analysis reveals that single informant designs are the dominant research approach. The use of single versus multiple respondents is reported for 42 out of the 55 studies found, which indicates only 13 studies use multiple informant designs. For single informant designs, 5 studies use the B2B context, 15 studies look at firms in the B2C context, and 22 examined the customers' points of view. Researchers, who use multiple informant designs, employ different types of informants in their studies. For example, Ordanini and Pasini (2008) employ managers in different organisational levels and Hakanen and Jaakkola (2012) and Ramani and Kumar (2008) employ managers in both B2B and B2C. The analysis shows that other researchers study or focus on employees and customers (Chan et al.

2010; Hsieh et al. 2003), managers and customers (Wang et al. 2013; Peled and Dvir 2012; Yi et al. 2011; Guo and Ng 2011; Bettencourt et al. 2002), and employees and managers (Chathoth et al. 2013; Perks et al. 2012) as key informants in their studies. Authors, who employ a multiple informant design, justify their design in two ways. First, they argue that a multiple informant design better accounts for common method variance (e.g., Yi et al. 2011; Chan et al. 2010). Second, the accuracy of information is strengthened if different people answer different questions, where such questions are more related to their duty in their organisation (e.g., Hakanen and Jaakkola 2012; Yi et al. 2011; Arnold et al. 2010; Chan et al. 2010).

The studies included in the database were also examined for patterns in terms of sample size and response rates. Interestingly, three studies report respondents of over 1500. The average number of respondents identified is 546, the largest sample size is 2679 and the smallest was 79 respondents. Further, the analysis revealed that the average response rate for quantitative studies is 33.74%, with the highest response rate recorded at 45% and the lowest at 14.2%. The average number of respondents in qualitative studies is 42.5, the largest sample size is 78, and the smallest was 6.

The results of the analysis of studies presented in Figure 2.3 also shows that 37 studies are based on survey data (quantitative methods), 17 are based on interview protocols (qualitative methods), and 5 are based on case study applying both interviews (qualitative methods) and analysis of firm's official documents (secondary data). Other methods such as observation, jury/expert judgement, and secondary data have been used rarely. Figure 2.3 illustrates the distribution of data collection methods in the current content analysis with the number of studies used each method of data collection.

Figure 2.3
Method of data collection



To provide a deeper understanding of the research methodologies applied by researchers, data analysis methods are presented in Table 2.3. The results of this review indicate that qualitative-based studies commonly utilise analysis techniques such

as text analysis of the interviews and focus groups. Text analysis includes coding of the interview transcripts or focus groups, and key word searches (e.g., Vivek et al. 2012; Aarikka-Stenroos and Jaakkola 2012; Guo and Ng 2011; Bowden 2009). Other qualitative methods such as sequential analysis (Perks et al. 2012), inductive and deductive analysis (Peled and Dvir 2012; Aarikka-Stenroos and Jaakkola 2012), and iterative narration approach (Ordanini and Pasini 2008) have been undertaken in studies.

Interestingly, some studies use secondary data in the form of organisational documents and reports to evaluate changes in informant responses because of the effect of revealing the analysis of organisational documents and reports. For instance, Enz and Lambert (2012) and Ordanini and Pasini (2008) interview informants and obtain their first responses to questions located in the survey. In the second stage, they study official documents and reports and present the results of their observation to managers. In the third stage, after revealing the information to managers, they interview managers to understand whether the information affect their responses. The dominant software used in the qualitative research is NVIVO and Microsoft Word (e.g., Aarikka-Stenroos and Jaakkola 2012; Guo and Ng 2011). Qualitative researchers adopt different approaches to explain their designs in their research methodologies. While some explain the method of data analysis systematically (e.g., Aarikka-Stenroos and Jaakkola 2012; Perks et al. 2012), others do not clearly articulate how they code scripts and data, nor do they explain the analysis procedure (e.g., Hakanen and Jaakkola 2012; Peled and Dvir 2012, Bowden 2009, Bettencourt et al. 2002).

The analytical techniques applied to analyse data in quantitative studies are presented in Table 2.3. In particular, researchers adopting quantitative methods report two categories of analysis: (1) preliminary analysis to test the reliability, data structures and fitness of the research model and constructs, and (2) theory testing analysis to analyse the proposed hypothesis. In doing so, quantitative researchers employ a variety of analyses in both preliminary data analysis and theory testing analysis. Table 2.3 shows that the most frequently employed preliminary analytical techniques used by quantitative research is reliability analysis via Cronbach alpha, discriminant validity, convergent validity, CFA, AVE, AVA, and EFA. As shown in Table 2.3, covariance-based SEM and variance-based SEM (e.g., Partial Least Squares [PLS]) appear to be commonly emploied for theory testing. To test theories, software such as Smart-PLS and PLS-Graph, as well as covariance-SEM such as Lisrel, and Amos are commonly used by researchers. Interestingly, all studies report direct effect or mediation/moderation relationships between constructs in their proposed research model. None of the studies analyse data via curvilinear analysis to study more complex relationships.

Table 2.3
Analytical techniques reported

Preliminary analysis			
	No of used		***No of used***
Discriminant validity - Determine by the AVE and squared correlation. – An indicator's loadings should be higher than all of its cross loadings.	16	Convergent validity - Calculated based on the average variance extracted (AVE)	13
CFA	13	EFA	2
Harman single-factor	1	Descriptive statistics	1
GoF	1	Frequency	1
Theory testing			
SEM	10	Regression	7
t-tests	4	PLS	5
AVA	4	Moderation effect	3
Mediation	3	ANOVA	2
MANOVA	2	Hierarchical Moderated Regression	2
3-stage least square	1	Cluster analysis	1
Correlation	1	ANCOVA	1
Maximum-likelihood estimation method	1		

2.4.5. Terms used in defining CCSP

This section examines the terminology applied by researchers to explain CCSP. To define the role of the customer in the service provision process, researchers used terms such as customer integration (Jacob 2006; Moeller 2008), customer involvement (Cheung and To 2011; Lin et al. 2010; Lundkvist and Yakhlef 2004), and customer participation (Ngo and O'Cass 2013; Eichentopf et al. 2011; Chan et al. 2010; Bendapudi and Leone 2003; Bitner et al. 1997). Others use customer co-production (Chen et al. 2011; Auh et al. 2006), customer co-creation (Payne et al. 2008), and customer engagement (Vivek et al. 2012; Brodie et al. 2011; Agarwal and Selen 2009). These terms have been used to define the level and the extent of customer cooperation in the service provision process. Further, some researchers have focused on issues beyond purchase and consumption, arguing that working with customers may last after the purchase in the form of supplying the firm with the feedback or word of mouth. Those adopt this focus introduce customer engagement and propose that other terms applied to explain the customers' role in the service provision are antecedents of customer engagement (Brodie et al. 2011).

Figure 2.4 depicts the terms mostly commonly found in the literature to explain CCSP. Further, it provides information on the type of studies focusing on their nature in

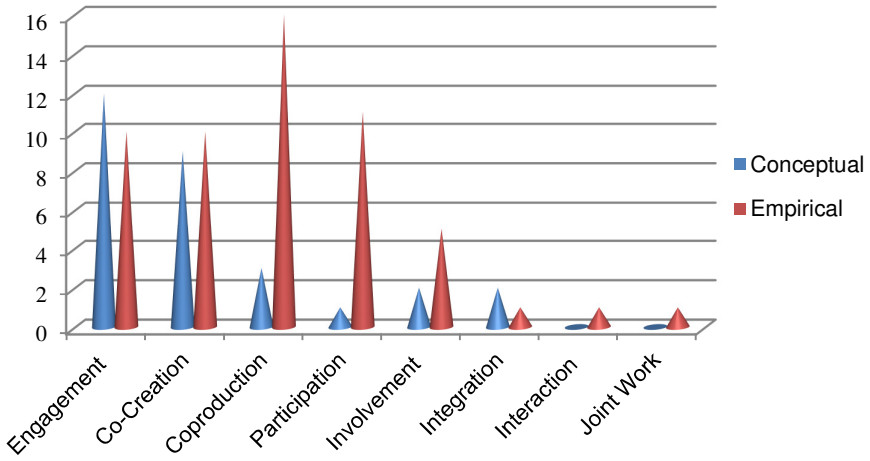
terms of being conceptual or empirically based. An examination of Figure 2.4 reveals that the term engagement has been used in 21 studies, and is the most popular term used to explain CCSP across the period of the content analysis. After engagement, the term co-creation appears in 20 studies, co-production in 18, participation in 9, and involvement in 7 studies. Interaction and joint work are not used to any significant degree by researchers, with as the term interaction used in 2 papers and joint work in 1 paper.

Further, the information presented in Figure 2.4 indicates that the term engagement is used in more than half of the conceptual studies. This may indicate that such studies focus on renewing an old construct with new definition and distinguishing it from other related terms in the realm of CCSP. Given that customer engagement is not a new concept, the reason for increased interest in customer engagement and renewing its concept and application has perhaps been stimulated by the Marketing Science Institute (MSI 2010 research priority for the period 2010-2012). The premise behind the interest appears to be related to technological developments that changes communications methods between customer-customer, as well as the firm-customers. Customer engagement is considered important, because the MSI counts customer engagement as customers' behaviour that goes beyond purchasing (MSI 2010). In an attempt to understand the essence of customer engagement, researchers have largely provided conceptual studies to propose definitions, identify the behavioural aspects of customer engagement, and theorise its relationships and effect on firm performance (Vivek et al. 2012; Brodie et al. 2011; Kumar et al. 2010; Van Dorn et al. 2010).

Figure 2.4 shows the type of studies and frequency of using different terms to explain CCSP during the period of examination. As shown in Figure 2.4, studies on customer engagement are largely conceptual, research using other terms have engaged more in empirical studies (co-creation: 9 conceptual studies compared to 10 empirical studies, co-production: 3 conceptual studies compared to 16 empirical studies, involvement: 2 conceptual studies compared to 5 empirical studies, and participation: 1 conceptual study compared to 11 empirical studies). The number of empirical studies can be interpreted in the sense that theory development related to other terms applied in CCSP has been moving toward being better developed and well defined. Researchers tend to test theories to understand if those relationships that already theorised in conceptual studies exist in the real world business environments, thus theories are accountable and actionable in the real business environment. For example, Bendapudi and Leone (2003) show that most of the works on co-production in the period of 1978 to 2000 are conceptual, with just three empirical studies. Figure 2.4 provides evidence that this body of literature has evolved since the work by Bendapudi and Leone (2003), the

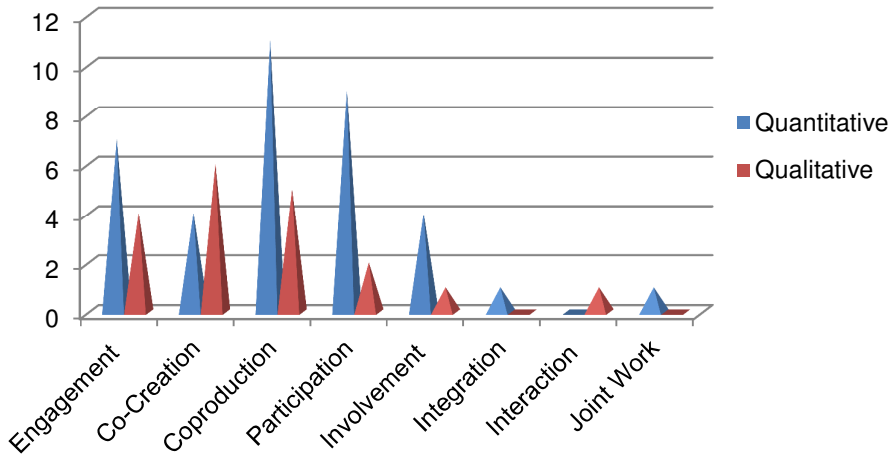
empirical studies in this area have been increasing, and the theory being advanced in conceptual studies has being tested. Figure 2.4 shows the comparison of conceptual and empirical studies on each terms applied in CCSP.

Figure 2.4
The terms that are used in the literature to explain



Further, a breakdown of the type of research, qualitative verse quantitative research is shown in the Figure 2.5. It can be seen in Figure 2.5 that most of the studies on co-creation are qualitative and there is no quantitative study on the term interaction. Researchers appear to have been moved to examine CCSP from qualitative research methodology to quantitative research methods.

Figure 2.5
Comparison of research from qualitative and quantitative perspective



2.4.6. Research streams in CCSP

This section presents the analysis of the streams of research on CCSP at the macro-level (e.g., customer level and firm level) and micro-level (e.g., different terms used to explain CCSP such as customer engagement). At the macro-level, two different streams of research are identified in the CCSP literature. The first stream focuses on the firm perspective and the second stream on customer perspective. In both customer and firm perspectives researchers use different terminologies to explain CCSP, such as customer engagement, customer co-production, customer involvement, customer integration, customer participation, joint work, and interaction. These two streams of research at the macro-level and the micro-level are illustrated in Table 2.4.

In the first identified stream of research in this content analysis (macro level), researchers focus on the issue from the firm perspective and examine antecedents and outcomes of CCSP at the firm level. The second (micro level), being researchers who focus on CCSP at the customer level and explained how customer related issues impact CCSP (e.g., motivation of CCSP). The examination of Table 2.4 illustrates that researchers appear to be more oriented toward the customer level compared to firm related issues. this conclusion is supported as 50 studies focused on the customer and 35 studies focused on firm issues.

At the micro-level, researchers have applied five different terms to conceptualise CCSP according to the activities of the customer in the service provision process. As shown in Figure 2.4 and Figure 2.5 in Section 2.4.5, the terms employed and the frequency of their usage vary based on the type of research (e.g., conceptual vs. empirical, qualitative vs. quantitative). The range of terms applied cover customer involvement, customer participation, customer co-production, customer integration, customer co-creation, and customer engagement. These terms are shown in the second part of Table 2.4, which also shows the studies devoted to each term. These five streams within the CCSP literature will be discussed in full detail in Section 2.4.7.

Table 2.4

Streams of research on CCSP

Streams of research at macro-level	Streams of research at micro-level	Researcher
Firm level	Customer Involvement	Peled and Dvir (2012); Chien and Chen (2010); Bennett et al (2007), 2005.
	Customer participation, co-production, co-creation	Wang et al. (2013); Eisingerich et al. (2013); Chathoth et al. (2013); Enz, and Lambert (2012); Ngo and O'Cass (2013); Grönroos and Voima (2012); Perks et al. (2012); Reay and Seddighi (2012); Aarikka and Jaakkola (2012); Lee et al. (2012); Grönroos (2011); Guo and Ng (2011); O'Cass and Ngo (2011); Yazdanparast et al. (2010); Ippolito (2009); Bolton and Saxena-Iyer (2009); Etgar (2008); Payne et al. (2008); Ordanini and Pasini (2008); Skjølsvik et al. (2007); Lusch and Vargo (2006); Bettencourt et al. (2002).
	Customer integration	Moeller (2008); Jacob (2006).
	Customer engagement	Roberts and Alpert (2010); Verhoef et al. (2010); Arnold et al. (2010); Agarwal and Selen (2009); Carter (2008).
	Joint work and interaction	Lusch et al. (2010); Ramani and Kumar (2008); Menon et al. (2005)
Customer level	Customer Involvement	Wu and Lo (2012); Hunt et al. (2012); Ashley et al. (2011); Cheung and To (2011); Edvardsson et al. (2005); Lundkvist and Yakhlef (2004)
	Customer participation, co-production, co-creation	Wang et al. (2013); Guo et al. (2013); Gallan et al. (2013); Eisingerich et al. (2013); Hibbert et al. (2012); Van Birgelen et al. (2012); Troye and Supphellen (2012); Schumann et al. (2012); Büttgen et al. (2012); Saarijärvi (2012); Hakanen and Jaakkola (2012); Yi and Gong (2012); Zolfagharian and Sheng (2012); Yi et al. (2011); Fuller et al. (2011); Eichentopf et al. (2011); Chen et al. (2011); Roggeveen et al. (2011); Shim et al. (2010); Chan et al. (2010); McColl-Kennedy et al. (2009); Dong et al. (2008); Xue and Field (2008); Cova and Salle (2008); Auh et al. (2007); Meuter et al. (2005); Groth (2005); Prahalad and Ramaswamy (2004, 2003); Bendapudi and Leone (2003); Hsieh et al. (2003); Swan et al. (2003); Lengnick-Hall et al. (2000); Gruen et al. (2000).
	Customer engagement	Vivek (2012); Sashi (2012); Gummerus et al. (2012); So et al. (2012); Hollebeek (2011); Brodie et al. (2011 a , b); Libai et al. (2010); Van Doorn et al. (2010); Kumar et al. (2010); Bijmolt et al. (2010); Mollen and Wilson (2009); Schau et al. (2009); Bowden (2009); Algesheimer et al. (2005).

2.4.7. ***Definitions of terms applied in CCSP***

The studies identified in Table 2.5 (p. 41) are also examined based on the definitions employed to explain CCSP. Most of these terms are defined at the individual level and explain the extrinsic and intrinsic factors that may drive CCSP. Further, there are definitions that underpin CCSP from the customer perspective as different stages, which include different steps to be completed by customers (Brodie et al. 2011; Bowden 2009). A few studies also define CCSP at the firm level as an organisational capability (see, Ngo and O'Cass 2013; Agarwal and Selen 2009; Jacob 2006).

The analysis of the literature reveals approximately 53 variations in definitions of the constructs that fit within the context of CCSP. The analysis of terms applied in CCSP indicates there are commonalities across the definitions within each category in CCSP and sometimes terms are used interchangeably across the categories. This view is comparable with the content analysis on engagement by Brodie et al. (2011) who indicated that the term engagement is particularly used to replace more traditional relational concepts, including involvement and/or participation. However, the literature provides evidence that some of these terms are in reality seen as being quite different concepts by some researchers. These researchers classify customer involvement and customer participation as antecedents to customer engagement (e.g., Brodie et al. 2011; Hollebeek 2011; Mollen and Wilson 2010). The following section discusses the definitions provided by researchers for terms applied in the CCSP context. Commonalities and points of differences across the definitions provided for the terms applied in CCSP literature will be fully outlined in Section 2.4.8.

Customer Engagement. The first concept defined here is customer engagement. The first part of Table 2.5 illustrates definitions of customer engagement appeared in the literature. Customer engagement is defined as a psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g., a brand, a firm) in focal service relationships (Brodie et al 2011), where customer behaviour goes beyond transactions (Van Doorn et al. 2010). The essence of definitions on customer engagement is a deep bond and close relationship between the service firm and the customer, which lead to a feeling of attachment to the service firm (So et al. 2012; Sashi 2012; Hollebeek 2011). Further, some researchers emphasise the importance of motivation to engage customers in the service provision process (So et al. 2012; Hollebeek 2011; Mollen and Wilson 2009; Schau et al. 2009; Higgins, 2006).

Reviewing the literature indicates that there is a lack of consensus among researchers on the definition of customer engagement. For instance, Van Doorn et al. (2010) define customer engagement as behaviour that goes beyond the transaction and

considered post purchase behaviour for engaged customers. In the same vein, Kumar et al. (2010) emphasise purchase and participation and raise the argument that relationships should lead to participation and purchase, enabling firms to make profits, otherwise there is no point to engage with customers.

Further, engagement is also defined by some as encompassing commitment and trust (Sushi et al. 2012) and loyalty and advocacy (Roberts and Alpert 2010). Engagement has also been defined by some few scholars as different stages that the customer should go through to be considered as "engaged customer" (Bowden 2009). In this sense, Bowden (2009) believe new customers should repeat their purchase and become loyal, to be considered as engaged customers. It appears that in Bowden's (2009) view retention and loyalty are engagement, or at least a demonstration of engagement. However, some believe that loyalty, commitment, and advocacy are consequences of engagement (Vivek et al. 2012). Moreover, while some researchers consider only one dimension for customer engagement, particularly a behavioural dimension (So et al. 2012; Gummerus et al. 2012; Kumar et al. 2010; Van Doorn et al. 2010; Roberts and Alpert 2010), others consider two or three dimensions, that they argue underpin customer engagement (Vivek et al. 2011; Brodie et al. 2011; Hollebeek 2011; Higgins and Scholer 2009; Bowden 2009). These dimensions are represented as emotional, cognitive, and behavioural. The emotional aspect focus on the deep bond between the service provider and a customer (Kumar et al. 2010), cognition represents the mental systems that solve a specific problem (Brakus et al. 2009), and the behavioural dimension describes customer behaviour towards the brand/ service provider (Van Doorn et al. 2010).

Customer Involvement. The other common term used to explain CCSP is involvement. Definitions of involvement are presented in Table 2.5. Involvement isseen as a "state of mental readiness that typically influences the allocation of cognitive resources by a consumer toward a consumption object, decision, or action" (Thomson et al. 2005, p. 79). Further, customer involvement is considered as the personal interest and relevance of an object (Hollebeek 2011; O'Cass 2000) that develops cognition (Thomson et al. 2005). The focus of the customer involvement definition was the motivational state of mind (Hunt et al. 2012; Wu and Lo 2012; Cheung and To 2011) that mobilises cognition (Lundkvist and Yakhlef 2004). The lack of consensus on the definition of involvement is evident among researchers, as well. Some researchers believe involvement does not necessarily relate to any specific tasks or responsibilities (Mollen and Wilson 2010) and may not guarantee active and sustained participation over time (Lundkvist and Yakhlef 2004). Others consider it as a determinant of purchase behaviour (Bennett et al. 2005) or as active participation (Peled and Dvir 2012; Chien

and Chen 2010). The group of researchers who view involvement as the customer's physical participation in the service provision process are different from those who believe involvement is a state of mind or importance and relevance of the service to customers (Hunt et al. 2012; Wu and Lo 2012; Cheung and To 201; Hollebeek 2011; Lundkvist and Yakhlef 2004). The notion of involvement as a state of mind is based on the consumer behaviour literature, where researchers describe involvement as consumer behaviour and decision making in the purchase process (see O'Cass 2000 and 2004; Petty and Cacioppo 1983). However, some researchers in the context of CCSP define customer involvement in services in a similar manner to customer involvement in the product purchase process (e.g., Hunt et al. 2012; Wu and Lo 2012; Cheung and To 201; Hollebeek 2011; Lundkvist and Yakhlef 2004).

Customer Participation. Customer participation is the next term researchers use to explain CCSP, as shown in Table 2.5. Among researchers, who use customer participation to explain CCSP, Bendapudi and Leone (2003) define it as an active customer involvement to produce and deliver the service and Eisingerich et al. (2013) and Chan et al (2010) define it as sharing information, providing suggestions, and participating in decision making during the service co-creation and delivery process. The focus of definitions provided for customer participation is on the degree that the customer works with the firm in producing and delivering a service (Bendapudi and Leone 2003, Ngo and O'Cass 2013, Van Birgelen et al. 2012; Ippolito 2009). Interestingly, other researchers have defined customer participation as all forms of customer involvement and engagement in the value-creation process (Yi et al. 2011). The common wording used to define customer participation related to providing information, or customer involvement (e.g., Eisingerich et al. 2013; Chan et al 2010).

Customer Co-creation. Another term used by researchers to explain CCSP is customer co-creation. Definitions found in the customer co-creation literature are presented in Table 2.5. Researchers, who use customer co-creation to explain CCSP, focus on the creation of value and define co-creation as the joint creation of value by the firm and the customer (Perks et al. 2012). To define CCSP in the service context, Vargo and Lusch (2006) modify the term co-production to co-creation to be more compatible with service context. They define two components for co-creation as including co-creation and co-production. In their view, co-creation is about something that is added to the core service in the service production process by customers and is the consequences of customer efforts that are captured at the point of exchange by the firm (e.g., monetary form). The second component of co-creation suggested by Vargo and Lusch (2006) is called co-production and it involves the customers' participation in the creation of the core service, including shared inventiveness, co-design, or shared

production of related goods to create the service. In the same vein, Grönroos and Voima (2012) argue that co-creation is the function of interaction. The statement "*function of interaction*" in the definition of Grönroos and Voima (2012) is what Vargo and Lusch (2006) referred to as "*co-production*".

As shown in Table 2.5, the focus of co-creation addresses the cooperation between the firm and the customer to provide the customised service. The common words that researchers use to define co-creation are: working together (O'Cass and Ngo 2011; Lee et al. 2012), dyadic problem solving process (Aarikka-Stenroos and Jaakkola 2012), interactive process and joint creation (Hakanen and Jaakkola 2012), joint creation of value (Perks et al. 2012) and collaboration (Cova and Salle 2007). Researchers have attempted to distinguish co-creation and co-production by focusing on service customisation mainly in the context of service solutions (Bolton and Saxena-Iyer 2009). In this view, co-creation occurs when the customer participates through spontaneous, discretionary behaviours that uniquely customise the service experience, while co-production typically is customer participation within organisation-defined framework (Bolton and Saxena-Iyer 2009).

Customer Co-production. While many terms and corresponding definitions vary within the CCSP literature, definitions of customer co-production are the more consistent ones in the CCSP literature. Definitions found in the customer co-production literature are presented in Table 2.5. The common focus of definitions related to co-production is on the extent that customers work with the service firm during service provision. In this literature, researchers do not consider any further behaviour for the customer after finalising the purchase (e.g., word of mouth or advocacy). According to some, customer co-production refers to the range of customer collaborative behaviours that contribute to a more optimal solution and building effective working relationships with the firm (e.g., Bettencourt et al. 2002). Through co-production, customers work with the firm within the parameters that the organisation has defined. These parameters are well defined and are often technology based such as ATM, or airline check-in where the firm transfers work to customers (Bolton and Saxena-Iyer 2009).

As shown in Table 2.5, the core nature or essence of the definitions of customer co-production appears to be the extent of customer participation in producing the core service and its delivery (Chen et al. 2011; Buttgen et al. 2012; Auh et al. 2007; Bettencourt et al. 2002). Through the process of co-production customers take on responsibilities in the service production and share their knowledge and skills with the service firm (Shim et al. 2010; Bolton and Saxena-Iyer 2009; Tung and Yuan 2008; Meuter et al. 2005). In co-production, customers are seen as partial employees (Meuter

et al. 2005; Lengnick-Hall et al. 2000) and the specific roles are identified for customers to carry out (e.g., working with ATM to withdraw some cash) (Meuter et al. 2005).

Customer Integration. As shown in Table 2.5, another term used to define CCSP is customer integration. Customer integration is seen as the extent that customer and the service provider combine their resources (e.g., persons, possessions, nominal goods, and/or personal data). Definitions found in the literature for customer integration are presented in Table 2.5. The combination of the customer and the service provider's resources enables service firms to transform customer resources into outputs for their customers (e.g., provide the service for them) and themselves (e.g., make profits as a result of selling the service) (Moeller 2008). Interestingly, only two studies are found that discuss customer integration and which focus on different issues (Moeller 2008; Jacob 2006). For instance, Jacob (2006) defines customer integration as a capability that enables a firm to integrate the customer's resources with its resources (Jacob 2006). Jacob (2006) argues customer integration is a higher order construct, constituted by communication capability, configuration capability, and control capability. However, Moeller (2008) explain it as a three-step process. In the first step, the firm works individually and uses its own resources to create an offering. The second step is where the service firm and the customer work together and combine and transform their resources. The third step is where the customer acts individually and uses the results of the resource transformation and creates value for itself. However, there are researchers who used the same philosophy about integrating customer resources and firm resources, but use the term "customer co-creation" (Hibbert et al. 2012; Lusch and Vargo 2006). This overlap creates confusion in the literature about if customer integration and customer co-creation are the same or something different.

Table 2.5
Definition of terms in CCSP

Term	Definition	Researcher
Customer engagement	Engagement refers to the creation of a deeper, more meaningful two way connection between the company and the customer, and one that endures over time, which leads to participation and purchase.	Kumar et al. (2010)
Customer engagement	CE is the intensity of an individual's participation in and connection with an organisation's offerings or organisational activities, which either the customer or the organisation initiates.	Vivek, Beatty, and Morgan (2011)
Customer engagement	CE is the ability of the service value network to encourage customers to participate and engage during the service encounter (face to face or technology mediated), and through the customer's engaging and learning process, judge and respond to customer's needs and expectations with agility and innovativeness.	Agarwal and Selen (2009)

Continue: Table 2.5
Definition of terms in CCSP

Term	Definition	Researcher
Customer engagement	Customer engagement behaviours go beyond transactions, and may be specifically defined as a customer's behavioural manifestations that have a brand or firm focus, beyond purchase, resulting from motivational drivers.	Van Doorn et al. (2010); Verhoef et al. (2010); Bijmolt et al. (2010)
Customer engagement	Customer engagement (CE) is a psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g., a brand) in focal service relationships. It occurs under a specific set of context dependent conditions generating differing CE levels; and exists as a dynamic, iterative process within service relationships that co-create value. CE plays a central role in a nomological network governing service relationships in which other relational concepts (e.g., involvement, loyalty) are antecedents and/or consequences in iterative CE processes. It is a multidimensional concept subject to a context- and/or stakeholder-specific expression of relevant cognitive, emotional and/or behavioural dimensions.	Brodie et al. (2011)
Customer engagement	Engaged customer is one that is loyal to your brand and actively recommends your products and services to others.	Roberts and Alpert (2010)
Customer engagement	Psychological process that models the underlying mechanisms by which customer loyalty forms for new customers of a service brand as well as the mechanisms by which loyalty may be maintained for repeat purchase customers of a service brand.	Bowden (2009)
Customer engagement	The level of an individual customer's motivational, brand-related and context-dependent state of mind characterised by specific levels of cognitive, emotional and behavioural activity in direct brand interactions'.	Hollebeek (2011)
Customer engagement	A customers' personal connection to a brand as manifested in cognitive, affective, and behavioural actions outside of the purchase situation.	So et al. (2012)
Customer engagement	Customer engagement requires affective commitment as well as calculative commitment or trust as well as commitment between sellers and customers. Customer engagement occurs when customers have strong emotional bonds in relational exchanges with sellers.	Sashi (2012)
Customer/ customer engagement	Customer to customer engagement. ''C2C interactions'' as the transfer of information from one customer (or a group of customers) to another customer (or group of customers) in a way that has the potential to change their preference, actual purchase behaviour, or the way they further interact with others.	Libai et al. (2010)
Community engagement	Community engagement practices are those that reinforce members' escalating engagement with the brand community.	Schau et al. (2009)
Customer engagement (online)	Online engagement is a cognitive and affective commitment to an active relationship with the brand as personified by the website or other computer-mediated entities designed to communicate brand value.	Mollen and Wilson (2009)
Community engagement	The positive influences of identifying with the brand community, which are defined as the consumer's intrinsic motivation to interact and cooperate with community members.	Algesheimer et al. (2005)

Continue: Table 2.5
Definition of terms in CCSP

Term	Definition	Researcher
Customer engagement (online community)	A behavioural manifestation toward the brand or firm that goes beyond transactions" and includes all consumer-to-firm interactions and consumer-to-consumer communications about the brand.	Gummerus et al. (2012)
Customer involvement	Active participation in innovation process through active dialogues.	Lundkvist and Yakhlef (2004)
Customer involvement	Realise the role of customer in NPD process and improve NPD success through the contribution of the customer involvement	Chien and Chen (2010)
Customer involvement	Involvement is conceptualised as the degree to which consumers are interested and involved	Ashley et al. (2011)
Customer involvement	Involvement is considered as a motivational state of mind (arousal) that is goal-directed.	Cheung and To 2011; Wu and Lo 2012; Hunt et al. (2012)
Customer involvement	Involvement is an interaction between person, stimulus, and situation.	Edvardsson et al. (2005)
Customer involvement	The general level of interest in the object or the centrality of the object to the person's ego structure, which depends on needs, externally prompted feelings of self-relevance and determines behaviour.	Bennett et al. (2005) and (2007)
Customer involvement	Involvement includes active participation of customer personnel in project design activities and in technical and program management decision making, blurring the line between producer and customer responsibilities.	Peled and Dvir (2012)
Customer participation	The degree to which the customer is involved in producing and delivering the service.	Bendapudi and Leone (2003); Ngo and O'Cass (2013), Van Birgelen et al. (2012); Ippolito (2009); Eisingerich et al. (2013); Gallan et al. (2013)
Customer participation	The average or per capita usage of the benefits association provides for its member.	Gruen et al. (2000)
Customer participation	The extents to which customers provide/ share information, make suggestions, and become involved in decision making.	Chan et al. (2010); Schumann et al. (2012)
Customer participation	The degree to which the customer is involved in taking actions to respond to a service failure."	Dong et al. (2008)
Customer participation	All forms of customer involvement and engagement in the value-creation process. This research uses customer participation behaviour in a narrow sense, which includes only required behaviours necessary for the successful service creation.	Yi et al. (2011)
Customer participation	Participation refers exclusively to a form of CVP entailing customers' willingness to provide constructive feedback and suggestions to the firm	Eisingerich et al. (2013)
Customer co-creation	Collaborative and interactive process.	Yazdanparast et al. (2010)
Customer co-creation	Value is co-created when the parties involved in a buyer–supplier relationship combine their knowledge and skills in order to achieve higher profits than would be achieved by working independently.	Enz, and Lambert (2012)

Continue: Table 2.5
Definition of terms in CCSP

Term	Definition	Researcher
Customer co-creation	Experiential creation as a broad range of activities in which an individual actively produces an outcome. Given the high degree of interrelationship between autonomy, competence, and task enjoyment, we assume that the co-creation experience underlies these three experience facets as a common second-order factor.	Fuller et al. (2011)
Customer co-creation	Customer value-creating processes, Supplier value-creating processes, Encounter processes.	Payne et al. (2008)
Customer co-creation	The degree to which the customer is involved in taking actions to respond to a service recovery.	Roggeveen et al. (2011)
Customer co-creation	Value co-creation has two components co-creation and coproduction. Value co-creation component views value as something that is added to products in the production process and at point of exchange is captured in value-in-exchange (e.g., price). S-D logic, The second component of co-creation is what might more correctly be called co-production. It involves the participation in the creation of the core offering itself. It can occur through shared inventiveness, co-design, or shared production of related goods, and can occur with customers and any other partners in the value network.	Lusch and Vargo (2006)
Customer co-creation	Value creation refers to customers' creation of value-in-use; co-creation is a function of interaction.	Gronroos and Voima (2012); Gronroos (2011)
Customer co-creation	Firm–customer working together to create a consumption experience.	O'Cass and Ngo (2011); Lee et al. (2012)
Customer co-creation	Co-creation can be defined as activities in which customers are involved related to the design and production of superior value they desire by using their knowledge and/or other resources in conjunction with either peer customers, or firms (e.g., suppliers), who also seek value creation.	Wang et al. (2013)
Customer co-creation	A dyadic problem solving process encompassing five key activities: diagnosing needs, designing and producing the solution, organising the process and resources, managing value conflicts, and implementing the solution.	Aarikka-Stenroos and Jaakkola (2012)
Customer co-creation	Activities with self or in collaboration with members of the service delivery network including self, family, friends, other patients, health professionals and the outside community.	McColl-Kennedy, et al. (2009)
Customer co-creation	Interactive process where actors – the suppliers and their customer – jointly create the solution offering by integrating resources.	Hakanen and Jaakkola (2012)
Customer co-creation	Co-creation involves the joint creation of value by the firm and its network of various entities (such as customers, suppliers, and distributors).	Perks et al. (2012)
Customer co-creation	Customer value co-creation behaviour include customer participation behaviour, which refers to required (in-role) behaviour necessary for successful value co-creation, and customer citizenship behaviour, which is voluntary (extra-role) behaviour that provides extraordinary value to the firm but is not necessarily required for value co-creation.	Yi and Gong (2012)

Continue: Table 2.5
Definition of terms in CCSP

Term	Definition	Researcher
Customer co-creation	Customer and supply chain partners [which] are collaborators in the entire marketing process.	Cova and Salle (2007)
Customer co-creation	Co-creation occurs when the customer participates through spontaneous, discretionary behaviours that uniquely customise the service experience (beyond the selection of pre-determined options).	Bolton and Saxena-Iyer (2009)
Customer Integration	Combining customer resources (persons, possessions, nominal goods, and/or personal data) with the company resources, in order to transform customer resources.	Moeller (2008)
Customer Integration	Customer integration competence describes the ability of a company to integrate customers into the production process of customised goods and services, which is operational configuration of goods and services, customer communication and controlling of efficiency under these specific conditions.	Jacob (2006)
Customer Coproduction	Co-production is a constructive customer participation in the service creation and delivery process and clarify that it requires meaningful, cooperative contributions to the service process.	Auh et al. (2007)
Customer Coproduction	Customer participation in the creation of the core offering, and occurs among customers in a value network, whether through shared inventiveness, co-design, or shared production.	Chen et al. (2011); Büttgen et al. (2012)
Customer Coproduction	Co-production is the sequence of customer activities in the context of value creation.	Eichentopf et al. (2011)
Customer Coproduction	The joint production situations in which both the customer and the firms contact employees interact and participate in the production.	Guo and Ng (2011)
Customer Coproduction	Co-production encompasses all cooperation formats between consumers and production partners and may take place within the production process which precedes the usage stage.	Etgar (2008)
Customer Coproduction	The range of client collaborative behaviours that contribute to more optimal knowledge-based project solutions, effective working relationships with the KIBS firm, and increased likelihood of goal achievement.	Bettencourt et al. (2002)
Customer Coproduction	The service produced by the client as the “self-service level”.	Xue and Field (2008)
Customer Coproduction	The way to exchange service/benefit represents how the service participants deal with the responsibilities, capabilities, and benefits to fulfil value co-production.	Tung and Yuan (2008)
Customer Coproduction	Co-production means that the business customer must be open, in terms of releasing its existing knowledge base, with the service provider: the provider can only maximise the service exchange benefits with free and open access to the customers’ knowledge and expertise.	Ordanini and Pasini (2008)
Customer Coproduction	Successful SST coproduction relies on customers knowing what is expected of them (role clarity), being motivated to engage in desired behaviours (motivation), and having the necessary knowledge and skills (ability) to fulfil their responsibilities.	Meuter et al. (2005)
Customer Coproduction	The degree to which the customer (actively) participates and provides input in producing and delivering an offering (Dabholkar, 1990).	Zolfagharian and Sheng (2012)

Continue: Table 2.5
Definition of terms in CCSP

Term	Definition	Researcher
Customer Coproduction	The degree to which the customer (actively) participates and provides input in producing and delivering an offering (Dabholkar, 1990).	Zolfagharian and Sheng (2012)
Customer Coproduction	The extent to which the membership is involved in the production of the association's products, services, and/or marketing.	Gruen et al. (2000)
Customer Coproduction	Coproduction refers to the range of client collaborative activities that contribute to more optimal knowledge based project solutions.	Shim et al. (2010)
Customer Coproduction	Co-production means engaging customers as active participants in the organisation's work or treating customers as ``partial employee'.	Lengnick-Hall et al. (2000)
Customer Coproduction	Customer co-production' is typically defined as customer participation within organisation-defined parameters. Customer coproduction implies that work is transferred from the organisation to the customer	Bolton and Saxena-Iyer (2009)
Customer Coproduction	coproduction behaviours, which are defined here as expected and required behaviours necessary for the successful production and/or delivery of the service,	Groth (2005)
Joint working	Joint Working refers to the parties in a relationship engaging in combined decision-making and problem solving.	Menon et al. (2005)
Interaction	Relevant values, behavioural norms, the shared mental modes used to make sense out of patterns of customer loyalty and defection, and decision criteria.	Ramani and Kumar (2008)

In picking up on the wide range of terms and definitions employed in the CCSP literature, the next section (2.4.8) discusses the similarities and overlap among the terms used to define CCSP.

2.4.8. ***Similarities and differences between definitions of terms applied in CCSP***

As noted in Section 2.4.7, it is evident that in the definitions found in the CCSP literature, similarities are found among some of the definitions. Table 2.5 presents examples of some of the definitions found based on the context and stated objectives of the research.

An analysis of the literature indicates that the similarities among the definitions of CCSP are more evident, when researchers employ co-production, participation, and co-creation. The similarity between these terms is based on their focus on the customer roles (e.g., actions, responsibilities) in the service provision process. Some researchers sought to distinguish co-creation as a different construct from co-production and participation, by focusing on the creation of value in the form of *value in use* and *value in exchange* (Grönroos and Voima 2012; Hollebeek 2011). However, others define co-creation similar to as co-production and participation. This similarity is based on viewing

customer activities as the mechanism assisting the service firm to provide the core services (e.g., Hakanen and Jaakkola 2012; Lee et al. 2012; Aarikka-Stenroos and Jaakkola 2012; O'Cass and Ngo 2011). Hollebeek (2011) define co-creation as the specific level of customer-perceived value created by joint and/or personalised activities. However, Grönroos and Voima (2012) and Yazdanparast et al. (2010) believe co-creation is the function of interaction, whereas Wang et al. (2013) and Enz and Lambert (2012) define co-creation as integration of the firm and the customer's knowledge and skills. This definition overlapped with the definition of customer integration proposed by Moeller (2008) and Jacob (2006), who define customer integration as the combination of the firm and the customer's resources. The overlap between customer integration and customer participation is also observed, where Chan et al. (2010) and Schumann et al. (2012) define customer participation as the process of exchanging resources (e.g., knowledge and skill). Based on the findings of the content analysis, it appears scholars see knowledge and skills as the primary resources that customers may share with the firm (Schumann et al. 2012; Chan et al. 2010; Moeller 2008; Jacob 2006).

An analysis of body of work on CCSP indicates that not only do researchers use some terms interchangeably, but there is a tendency by some to use one term to define another construct (e.g., terms and definitions are used interchangeably, increasing inconsistency). For instance, as shown in Table 2.5, while most researchers use involvement to define customer participation (e.g., Eisingerich et al. 2013; Ngo and O'Cass 2013, Van Birgelen et al. 2012; Yi et al. 2011; Ippolito 2009; Dong et al. 2008; Bendapudi and Leone 2003), some define co-production using the term participation (e.g., Guo et al. 2013; Zolfagharian and Sheng 2012; Büttgen et al. 2012; Chen et al. 2011; Tung and Yuan 2008; Auh et al. 2007; Lengnick-Hall et al. 2000). In fact, while the terms are used interchangeably, their conceptualisation and application are different. This provides further evidence that the boundaries between constructs are not well articulated or defined by researchers when using these specific terms.

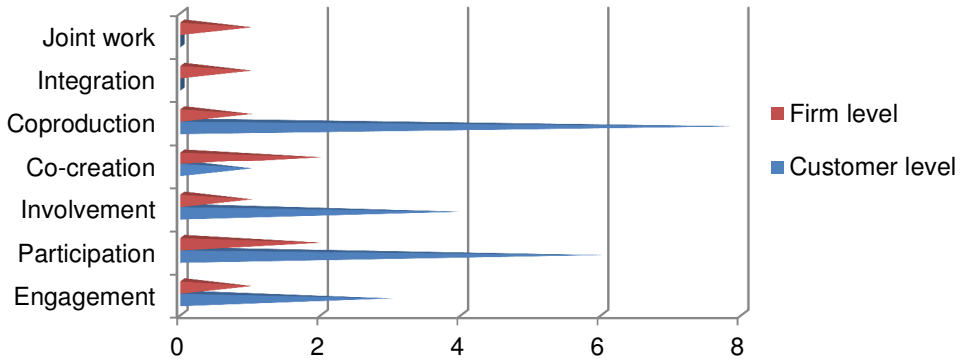
The variation found in terms used within the CCSP literature is somewhat problematic and differences in definitions have the capacity to create confusion about the application of terms. Most of these differences are applied to adjust the definition to the context of the specific study. The analysis of the definitions in the CCSP literature reveals that some of the terms used are identical, including terms such as co-production, co-creation, participation, and integration. Synthesising the terms adopted in CCSP may assist to avoid confusion in the specific context they are applied by researchers.

2.4.9. ***Measurements used to determine CCSP***

The Section 2.4.8 presented the definitions of terms used in the literature and identified the similarities and differences among terms. This section (2.4.9) pertains to analysing measures as it assists in understanding (a) the different approaches to measure constructs within the CCSP context (e.g., customer involvement, co-creation, and co-production) and (b) the approaches undertook to operationalise CCSP. If as is the case some researchers applied the same measures to examine different terms (or terms with different definitions), then using different terms to explain or study the core nature of CCSP and its effects may be questioned because of a lack of consistency or clarity in the domain. More importantly, if the terms in the domain of CCSP are conceptualised differently, but they are operationalised using the same or very similar measures, this alludes to a lack of conceptual and operational clarity.

During the period covering the content analysis (2000 – 2013), 39 studies employ survey protocol as the means of data collection (outlined Figure 2.3). Among these studies, 31 studies report specific details of the items used to measure CCSP, in which 22 studies use items from the customer perspective and 9 studies use items from the firm perspective. The applied measures from both the customer and the firm perspectives are presented in Figure 2.6. The assessment of measures from the customer perspective reveals that co-production and participation have been attracting the significant attention. In particular, 8 studies measure customer co-production and 6 studies measure customer participation, followed by 4 for involvement and, 3 studies measure engagement and 1 study measures co-creation. The assessment of measures from the firm perspective reveals that two studies measure customer participation and co-creation, and only one study measure engagement, co-production, integration, and joint work. Further, one measure is available for customer involvement from firm perspective.

Figure 2.6
Distributions of measurements of terms in CCSP



The findings of the content analysis of measures are presented in the following two sections, Sections 2.4.9.1 and 2.4.9.2. In particular, Section 2.4.9.1 analyses the measures of CCSP from the customer perspective and Section 2.4.9.2 undertakes the analysis focusing on the firm perspective.

2.4.9.1. ***Measurements applied to examine CCSP from costumer perspective***

The analysis of measurement reveals that most researchers use Likert scales with 24 studies out of 31 studies. In particular, 8 studies use 1-5 scale poles, 18 studies use 1-7 scale poles and only one paper use 1-10 scale pole (Algesheime et al. 2005). Four studies do not report the scales used. Interestingly, none of the studies provide the rationale behind choosing the specific scale poles (e.g., why using Likert 1-5 or why 1-7). The only two studies that use two different measurement scales is Bennett et al. (2005 and 2007) who uses both Likert and semantic differential. They justify this approach by arguing that Likert is product specific, while semantic differential is more appropriate for the service provision and customer cooperation domains. The scale poles commonly used are "strongly disagree' to "strongly agree' (e.g., Chen et al. 2011), "very unlikely" to "very likely" (e.g., Schumann et al. 2012), "not at all true" to "very true" (e.g., Hunt et al. 2012), and "a lot less" to "a lot more" (e.g., Zolfagharian and Sheng 2012). Moreover, a limited number of studies consider a midpoint, such as Yi and Gong (2012) who assign a scale pole of "neither agree nor disagree". Regarding the semantic differential approach, when considering involvement as a state of mind, different scale poles are defined such as "Unimportant" to "important"; "Irrelevant" to "Relevant"; and " Boring" to "Interesting" (e.g., Bennett et al. 2005 and 2007).

The analysis of measures in this section (2.4.9.1) focuses on the items employed to measure CCSP from the customer perspective as shown in Table 2.6. The content analysis of items used to measure CCSP from the customer perspective identifies three categories that focus on behavioural, emotional, and cognitive aspects of CCSP.

Measuring behavioural dimension of CCSP. Many researchers focus on the behavioural aspect of CCSP and how customers work with the service firm in the process of service provision, decision-making, sharing knowledge and experience through the process of service provision, and ability of using technology provided by the service firm to complete the task of service provision. Even though the meaning communicated with specific terms is the same, different terms (e.g., wording) are used to transfer the meaning. For instance, to measure physical activities through service provision, Yi and Gong (2012), Yi et al. (2011), and Groth (2005) use items such as "*I performed all the tasks that are required*" while Zolfagharian and Sheng (2012) use

items such as "*I perform tasks that store employees would normally perform*". Whereas, Auh et al. (2007) use items such as "*I try to work cooperatively with my advisor*". However, the common term for behavioural dimension appear to be "*task*", "*work*", "*effort*", "*carry out*", which emphasises the relative extent of physical work customers do during service provision.

Measuring emotional dimension of CCSP. As shown in Table 2.6, to measure the emotional aspect of CCSP, items that tap the sense of belonging to the service firm or the connection between customer and service firm are used. For example, Yi and Gong (2012) use items such as "*I was friendly to the employee*" and So et al. (2012) use items such as "*I am passionate about this brand*" (So et al. 2012). To measure the emotional dimension of CCSP most researchers use terms such as, "*like*", "*interest*", and "*passionate*", which demonstrate the feelings and emotions of customers towards service employee, brand, or service firm.

Measuring cognitive dimension of CCSP. While more attention has been paid to the behavioural and emotional aspects of CCSP, less attention has been given to measuring the cognitive dimension of CCSP. To measure this dimension of CCSP, researchers use items that reflect the customer's intention to learn about the service provider, such as "*I like to learn more about this brand*" (So et al. 2012). Most of the items used to measure involvement fit within the cognitive dimension (Wu and Lo 2012; Hunt et al. 2012). The most commonly used wording in this dimension is "*learning*", "*ask*", and "*familiarity*". These words demonstrate the level of customer knowledge or the level of customer interest in learning about the service firm and its services.

The content analysis of measures also reveals that to measure CCSP from the customer perspective researchers adopt different approaches. For example, while some researchers use first order conceptualisations (e.g., Chan et al. 2010; Groth 2005; Algesheimer et al. 2005), others apply a higher-order, first order - second order conceptualisations (e.g., Guo et al. 2013; So et al. 2012; Gummerus et al. 2012; Yi and Gong 2012).

Customer co-creation as a higher-order construct - first order-second order. As presented in Table 2.6, Yi and Gong (2012) measure co-creation as a Type II, first order reflective and second order formative construct comprising information seeking, information sharing, personal interaction, feedback, advocacy, helping, and tolerance. Analysing the first order constructs (the components) in the conceptualisation of Yi and Gong (2012) reveals a degree of overlap with the conceptualisation of other terms (e.g., customer engagement) used to explain CCSP. Interestingly, the conceptualisation of customer co-creation by Yi and Gong (2012) show that customer co-creation has different dimensions including behavioural, emotional, and cognitive

dimensions. In the literature, the same dimensions have been considered for customer engagement by Brodie et al. (2011). More precisely, while Yi and Gong (202) consider advocacy and feedback as part of customer co-creation and call it customer voluntary behaviours, Kumar et al. (2010) and Van Doorn et al. (2010) and Vivek et al. (2012) view these types of behaviours as post-purchase behaviour of customer engagement. Further, looking at the items presented in Table 2.6 used to measure "*information sharing*" indicates that it encompasses a behaviour as identified by Jacob (2006) and Moeller (2008) addressing customer integration, where customers share their resources with the service provider. Moreover, the personal interaction dimension explains the emotional aspect of interaction between customer and service provider. Therefore, Yi and Gong's (2012) first order conceptualisation of co-creation can be seen as customer engagement, based on the general usage of this term in the CCSP literature used by Vivek et al. (2012); Brodie et al. (2011); Van Doorn et al. (2010) and Kumar et al. 2010), for example. This analysis raises issues about how co-creation might be different from customer engagement, while customer co-creation is operationalised with the dimension of customer engagement based on the definitions provided in the literature.

Customer engagement as a first order-second order. Gummerus et al. (2012) measure customer engagement as a behavioural construct and define it as possessing two behavioural dimensions comprising: (1) community engagement behaviour and (2) transaction engagement behaviours. Their items measuring community engagement behaviour and transaction engagement behaviours are shown in Table 2.6. The transaction part of their engagement supports the argument of Kumar et al. (2010) who raise the point that engagement without payment does not create any profit for the firm.

Customer coproduction as a first order-second order. Zolfagharian and Sheng (2012) conceptualise co-production in the form of multiple constructs that are internally related. As shown in Table 2.6, these constructs are time, familiarity, effort, service production, and partial employee. The analysis of the items in their measure presented in Table 2.6 shows that in the "effort" construct there are items that measure emotional and mental effort, which overlap with items measuring customer engagement (e.g., So et al. 2012). Further, in the service production construct, there are items measuring sharing of resources with the service provider, which based on the literature are related to customer integration. More recently, Guo et al. (2013) measure co-production behaviour as a combination of different types of customer behaviour, such as compliance, individual initiative, and civic virtue. In the organisational behaviour literature, these types of behaviour are considered as employee citizenship behaviour (Podsakoff et al. 2000). There is evidence in the literature that customer behaviours may take some forms of employee's citizenship behaviours (Yi et al. 2011). However,

these types of behaviours are considered by some researchers to distinguish customer engagement from other terms in CCSP (Vivek et al. 2012; Brodie et al. 2011; Van Doorn et al. 2010; Kumar et al. 2010). This point raises issues about how co-production might be different from customer engagement, while customer co-production is operationalised as customer engagement based on the literature.

Summary of discussion on measures of CCSP. Analysing the measures applied by researchers provides some indications that the borders between different terms in CCSP have not been and are still not clearly delineated. As shown in Table 2.6, the items used to measure co-production by some researchers such as Guo et al. (2013) have been applied by others to measure customer participation (see. Eisingerich et al. 2013). Further, customer involvement is measured by items that others use to measure customer participation (see. Ashley et al. 2012). Furthermore, measures of coproduction focus on post purchase behaviour (Shim et al. 2012; Gruen et al. 2000), providing evidence of level of overlap with customer engagement as conceptualised by Vivek et al. (2011); Kumar et al. (2010) and Van Doorn et al. (2010). The review reveals that borders between different terms and measures applied in CCSP are not well defined and distinguished.

Table 2.6
Measurements applied to examine CCSP in consumer research

Term	Researcher	Measures
Customer engagement	So et al. (2012)	**Identification:** When someone criticizes this brand, it feels like a personal insult I am very interested in what others think about this brand When I talk about this brand, I usually say we rather than they This brand's successes are my successes When someone praises this brand, it feels like a personal compliment. **Enthusiasm:** I am heavily into this brand. I am passionate about this brand. I am enthusiastic about this brand. I feel excited about this brand. I love this brand. **Attention:**: I like to learn more about this brand I pay a lot of attention to anything about this brand. Anything related to this brand grabs my attention. I concentrate a lot on this brand. I like learning more about this brand. **Absorption:** When I am interacting with the brand, I forget everything else around me. Time flies when I am interacting with the brand When I am interacting with brand, I get carried away. When interacting with the brand, it is difficult to detach myself, In my interaction with the brand, I am immersed, When interacting with the brand intensely, I feel happy.

Continue: Table 2.6
Measurements applied to examine CCSP in consumer research

Term	Researcher	Measures
Customer engagement	So et al. (2012)	**Interaction:** In general, I like to get involved in brand community discussions. I am someone who enjoys interacting with like-minded others in the brand community. I am someone who likes actively participating in brand community discussions. In general, I thoroughly enjoy exchanging ideas with other people in the brand community. I often participate in activities of the brand community
Brand engagement	Gummerus et al. (2012)	Customer engagement was measured with a combination of (1) **Brand community engagement**, including frequency of brand community visits, content liking, commenting, and news reading, (2) **Transactional behaviours**, including frequency of playing, and money spent on the internet gaming site.
Community engagement	Algesheimer et al. (2005)	I benefit from following the brand community's rules. I am motivated to participate in the brand community's activities because I feel better afterwards. I am motivated to participate in the brand community's activities because I am able to support other members. I am motivated to participate in the brand community's activities because I am able to reach personal goals.
Customer participation	Dong et al. (2008)	**Firm recovery***:* The system suggested that you contact the cable company for help. A technician came to your place to inspect the problem. The technician made an extensive effort to identify your mistake in your setup, and successfully set up the Internet for you. But you didn't see how he/she actually completed the setup. You didn't make any effort to fix the problem. The technician actually solved the problem. **Joint recovery:** You contacted the cable company for help. A technician answered your call. You were guided through the whole installation procedure step-by-step, found your previous mistake, and successfully set up the Internet by cooperating with the employee. **Customer recovery:** You didn't give up. After several trials, you found your mistake and set up the Internet correctly on your own. Now you fully understand how to set up the Internet service.
Customer participation	Chan et al. (2010)	I spent a lot of time sharing information about my needs and opinions with the staff during the service process. I put a lot of effort into expressing my personal needs to the staff during the service process. I always provide suggestions to the staff for improving the service outcome. I have a high level of participation in the service process. I am very much involved in deciding how the services should be provided.
Customer participation	Chan et al. (2010)	I spent a lot of time sharing information about my needs and opinions with the staff during the service process. I put a lot of effort into expressing my personal needs to the staff during the service process. I always provide suggestions to the staff for improving the service outcome. I have a high level of participation in the service process. I am very much involved in deciding how the services should be provided.

Continue: Table 2.6
Measurements applied to examine CCSP in consumer research

Term	Researcher	Measures
Customer participation	Yi et al. (2011)	"I perform all the tasks that are required of me" "I fulfil customer responsibilities to employees of the firm.
Customer participation	Schumann, et al. (2012)	Motivation to Provide Personal Information 1. During a consultation I would talk with my bank advisor about my plans for the future. 2. I would talk with my bank advisor also about my career plans. 3. In the course of the consulting I would disclose even very private information to my bank. Motivation to Follow Advice 1. If I had a serious financial problem, I would feel comfortable to follow my bank's advice. 2. In a difficult financial situation, I would totally rely on my bank.
Customer participation	Eisingerich et al. (2013)	1. If I have a useful idea on how to improve service, I give it to someone at the firm 2. I make constructive suggestions to [business name] on how to improve its product offerings. 3. I let [business name] know of ways that it can better serve my needs.
Customer participation	Wang et al. (2013)	Our customers always provide us valuable information during the project delivery period. Our customers always share their expertise during the project delivery period. Our customers actively exchange their information, ideas and experiences with us. The exchange of information about techniques and working styles between our customers and our project managers happens frequently. ***Note**: this measure was used by original researchers to measure from customer and firm perspective. They claim they changed the wordings, but did not provide the one they used in their research.*
Customer involvement	Bennett et al. (2007, 2005)	How would you describe your purchases in this category? Unimportant – important, Irrelevant – relevant, Means nothing to me – means a lot to me- Valuable – worthless
Customer involvement	Ashley et al. (2011)	I closely keep track of the services provided by this company I participate in many of the services offered by this company I am on top of things as far as this service provider is concerned
Customer involvement	Cheung and To (2011)	My banking transaction with this bank is very important to me. My banking activity with this bank is continually of interest to me. My banking activity with this bank has a great concern with me. I am highly involved in reading information about banking services.
Customer involvement	Wu and Lo (2012)	Modification of involvement scales from Zaichkowsky (1994) and Slama and Tashchian (1985).
Co-creation	Yi and Gong (2012)	**Information seeking** I have asked others for information on what this service offers. I have searched for information on where this service is located. I have paid attention to how others behave to use this service well. **Information sharing** I clearly explained what I wanted the employee to do. I gave the employee proper information. I provided necessary information so that the employee could perform his or her duties. I answered all the employee's service-related questions.

Continue: Table 2.6
Measurements applied to examine CCSP in consumer research

Term	Researcher	Measures
Co-creation	Yi and Gong (2012)	***Responsible behaviour*** I performed all the tasks that are required. I adequately completed all the expected behaviours. I fulfilled responsibilities to the business. I followed the employee's directives or orders. **Personal interaction** I was friendly to the employee. I was kind to the employee. I was polite to the employee. I was courteous to the employee. I didn't act rudely to the employee.
Co-creation	Yi and Gong (2012)	**Feedback** If I have a useful idea on how to improve service, I let the employee know. When I receive good service from the employee, I comment about it. When I experience a problem, I let the employee know about it. **Advocacy** I said positive things about XYZ and the employee to others. I recommended XYZ and the employee to others. I encouraged friends and relatives to use XYZ. **Helping** I assist other customers if they need my help. I help other customers if they seem to have problems. I teach other customers to use the service correctly. I give advice to other customers. **Tolerance** If service is not delivered as expected, I would be willing to put up with it. If the employee makes a mistake during service delivery, I would be willing to be patient. If I have to wait longer than I normally expected to receive the service, I would be willing to adapt.
Coproduction	Gruen et al. (2000)	Percentage of membership formally involved in running the association. Percentage of membership that participated in the community service project In the past year, have you specifically encouraged another member to participate in or attend one or more of the association's activities? (yes/no) In the past year, have you encouraged a non-member to join this ALU? (yes/no)
Coproduction	Gruen et al. (2000)	In the past year, have you responded to a legislative action alert on one or more occasions? (yes/no) In the past year, have you made a contribution to life under writers political action committee (yes/no).
Coproduction	Groth (2005)	I performed all the tasks that are required. I helped the organisation with those things that are required. . I adequately completed all expected behaviours. I met formal performance requirements. . I fulfilled responsibilities to the organisation**.**
Coproduction	Auh et al. (2007)	I try to work cooperatively with my advisor. I do things to make my advisor's job easier. I prepare my queries before contacting my advisor

Continue: Table 2.6
Measurements applied to examine CCSP in consumer research

Term	Researcher	Measures
Coproduction	Zolfagharian and Sheng, (2012)	**Service production** I involve myself in carrying out my shopping My input to fulfilling my shopping is My role in completing my own shopping is I work for myself while I am shopping **Partial employee** My understanding of the responsibilities of store employees is I perform tasks that store employees would normally perform I save employee time for the store by helping myself I feel like a partial employee of the store
Coproduction	Guo et al. (2013).	**Compliance** I try to do what the counsellors ask me to do I follow the recommended payment plan and guidelines I respond to any written or telephone inquiries from the company promptly **Individual initiative** I put the educational guidance and suggestions (e.g., financial tips or ideas) to good use in my life I actively seek advice from the company on financial decisions I consider myself a highly participating member of this credit counselling organisation I provide feedback about the program through conversations or written correspondence **Civic virtue** I proactively communicate with the organisation about potential service-related problems I make suggestions to the organisation about how to improve its services I let the organisation know of ways that can better serve my needs.
Coproduction	Shim et al. (2012)	Overall, users share honest, clear, and pertinent information project success with the IS development team Overall, users take individual initiative and shared responsibility for developing solutions Overall, users respond in an understanding and patient manner in the face of project encumbrances, difficulties, and inconveniences Overall, users seriously consider the desires, approaches, and expert judgment of the IS developers Overall, users advocate the project and sell its merits to other stakeholders Overall, users take an active role in monitoring progress toward stated project goals Overall, users commit to project success by satisfying responsibilities in a persistent, conscientious, and responsive manner.
Coproduction	Cheung and To (2012)	I am willing to put in a great deal of effort in order to help the bank provide service to me (such as fill-in a bank-informer complete other required forms to accelerate their process). I help new bank employee when he/she seems uncertain. I am willing to tell new customers who do not know where to queue. .

Continue: Table 2.6
Measurements applied to examine CCSP in consumer research

Term	Researcher	Measures
Coproduction	Büttgen et al. (2012)	I carry out all exercises slowly and carefully until the end. I exactly stick to the specified order of machine use. If it is too exhausting at a machine, I break up the exercise prematurely. (r) I follow the recommended training frequency consequently. Instead of calculating the training weight of the next/higher level accurately, I rather make a rough estimation. (r) I take care of relaxing all muscles which are not being trained. If the effort is very big, I do the exercises less intensively (range of motion). (r) I adjust the machines with regard to all aspects according to my physical specifications. I choose the weight on each machine so that I can perform the exercise precisely between 60 and 90 seconds. If the machines are free, I switch from one to the other without any interruption. At every machine I push myself to the full extent of my capabilities.
Coproduction	Zolfagharian and Sheng, (2012)	**Time** I wait The time that elapses before I leave the store is…. The time I take to complete my shopping is …. **Familiarity** I need familiarity with store policies I need familiarity with store procedures I need familiarity with store values I need familiarity with store equipment I need familiarity with store products **Effort** I spend physical effort I spend mental effort I spend emotional effort **Service production** I involve myself in carrying out my shopping My input to fulfilling my shopping is My role in completing my own shopping is I work for myself while I am shopping **Partial employee** My understanding of the responsibilities of store employees is I perform tasks that store employees would normally perform I save employee time for the store by helping myself I feel like a partial employee of the store

2.4.9.2. *Measurement applied to examine CCSP from firm perspective*

This section assesses the measures of terms applied in CCSP from the service firm perspective. The measures of CCSP from the service firm perspective are more limited in number than those from the customer perspective. To measure CCSP from the firm perspective, researchers employ first-order constructs (e.g., co-creation and joint work by O'Cass and Ngo 2011; Menon et al. 2005) and second order constructs (e.g.,

customer integration, Jacob 2006; customer involvement, Chiena and Chen 2010). Researchers mainly focus on measuring the behavioural dimension of CCSP from the service firm perspective and the extent the service firm works with the customer (e.g., O'Cass and Ngo 2011; Menon et al. 2005). Interestingly, no research is found measuring emotional and cognitive dimensions of CCSP like what has been done in studies that measure CCSP from the customer perspective. The common wording used to measure CCSP from the service firm perspective is: "*joint working*" (Menon, et al. 2005), "*working together*" (Ngo and O'Cass 2013; O'Cass and Ngo 2011), *"co-opting"* (Agarwal and Selen 2009), and "*working cooperatively*" (Chen et al. 2009), with the aim of measuring the extent of CCSP at firm level. Analysing the measures shows researchers are mainly interested in the extent the service firm develops its relationship with the customer to work with them in the process of decision making (e.g., Menon, et al. 2005), service design and delivery (e.g., Ngo and O'Cass 2013; O'Cass and Ngo 2011; Chen et al. 2009; Agarwal and Selen 2009), and sharing knowledge with the service firm (e.g., Wang et al. 2013). However, there are researchers who sought to identify the mechanisms service firms develop to explain the process of working and communicating with their customers through service provision (Jacob 2006). All measures employed by researchers to measure CCSP at firm level are presented in Table 2.7.

Further, measures related to co-creation specifically concentrate on the extent that service firms work with customers closely to identify their needs, deliver the value they expect to receive (O'Cass and Ngo 2011), and provide channels to facilitate interaction with them (Reay and Seddighi 2012). However, Wang et al. (2013) have different views and measure customer co-creation focusing on knowledge sharing with the firm. Analysis of the measure of customer co-creation used by Wang et al. (2013) indicates some similarities with Chien and Chen (2010) measuring customer involvement. Interestingly, researchers focusing on measuring customer participation use the modified versions of measure developed for co-creation and joint work with customers (Ngo and O'Cass 2013). Researchers focusing on measuring customer participation use the modified versions of measure developed for co-creation and joint work with customers (Ngo and O'Cass 2013). Examples of the items used by O'Cass and Ngo (2013; 2011), Wang et al. (2013), and Reay and Seddighi (2012) are shown in Table 2.7.

Measures related to customer engagement concentrate on the advantages engaging customer may offer to the firm. However, as shown in Table 2.7 it seems that Agarwal and Selen (2009) do not really measure how the firm actually engage with the customer. It seems they concentrate more on the advantages that engaging customers

creates for the service firm and how the service firm can explore opportunities via engaging customers.

Further, the measures of customer co-production are not that different from measures of participation or co-creation. For example, Chen et al. (2009) use items such as: *"Working cooperatively with each other"* to measure co-production, which do not seem significantly different from the measures of customer participation and customer co-creation used by Wang et al. (2013) and O'Cass and Ngo (2011).

Chien and Chen (2010) measure customer involvement in financial services and introduce two different facets for customer involvement as customer resources and co-production. The focus of the first facet was getting customers' advice through the development of new services and for the second facet they introduce working with customers through the development of new service. Studying the full items used by Chien and Chen (2010), as presented in Table 2.7; reveals a mix of customer integration and coproduction under the label of customer involvement.

The last form of measures used by researchers focuses on customer integration. Customer integration is measured as a higher-order construct which includes the three first order constructs of configuration competence, communication competence, and control competence (e.g., Jacob 2006). All constructs are defined and conceptualised in this area as a firm capability aiming to improve market performance (Jacob 2006).

Overall, the analysis of measures of CCSP from the service firm perspective reveals that borders between different terms and measures applied in CCSP are not well defined and distinguished.

Table 2.7
CCSP measure from firm perspective

Term	Author	Measures
Customer Co-creation	Wang et al. (2013)	Our customers always provide us valuable information during the project delivery period. Our customers always share their expertise during the project delivery period. Our customers actively exchange their information, ideas and experiences with us. The exchange of information about techniques and working styles between our customers and our project managers happens frequently.
Joint work	Menon et al. (2005)	Our two companies jointly make many important technical decisions that might impact our relationship with each other. Our two companies jointly decide on the goals and objectives for our relationship with each other. In many cases, our two companies mutually agree before making major technical decisions that might impact our relationship with each other. Our two companies jointly solve many of our technical problems. Both companies actively provide input into this product's development process.

Continue: Table 2.7
CCSP measure from firm perspective

Term	Author	Measures
Customer involvement	Chien and Chen (2010)	Customer's resources: Initiative in asking for consumers' advice during the NPD/NSD process in every design stage. Cautiously screen opinions provided by customers Make a standard to evaluate customers' satisfaction and carefully estimate resources Co-production: Educate customers to provide specific goals or advice towards the company's products or services Make the customers participate in the developing process of design and evaluation for new product
Customer integration	Jacob (2006)	**Configuration competence** In our company we have the technological expertise needed to develop problem solutions for our customers. In our company we have standard procedures to collaborate with customers on individual problem solutions. **Communication competence** In our company we have methods to capture data detailing an individual customer's needs. In our company we have methods to demonstrate individual problem solutions to our customers. **Control competence** In our company we have methods to calculate the costs and prices of individual problem solutions. In our company we have methods to document collaboration with customers on problem solutions *Note: as this measure is very long only examples are provided.*
Coproduction	Chen et al. (2009)	Participating in the service creation and delivery process Cooperating contributions to the service process Prior to preparing related meetings Responding the requests openly Working cooperatively with each other
Co-creation	O'Cass and Ngo (2011)	working together with customers to produce offerings that mobilise them interacting with customers to design offerings that meet their needs providing services for and in conjunction with customers co-opting customer involvement in providing services for them providing customers with supporting systems to help them get more value
Co-creation	Reay and Seddighi (2012)	Focused on individual customers' requirements Multi-institutionalised delivery of products/services ICTs as enablers of interaction Communications channels to allow dialogue Quality across communications channels Staff training in customer relations Information systems Customers as sources of value creation Shared proprietary information with customers
Customer participation	Ngo and O'Cass (2013)	We work with customers to serve them better We work with our customers to co-produce offerings that mobilise customers We interact with customers to co-design offerings that meet customers' unique, changing needs We provide supporting services in cooperation with customers We co-opt customer involvement into our services We work with customers to provide supporting systems to help them get more value out of our services

Continue: Table 2.7
CCSP measure from firm perspective

Term	Author	Measures
Customer engagement	Agarwal and Selen (2009)	Co-opting with the customer gives us greater contextual ability to explore opportunities and options. Engaging customers helps us evaluate and align our service offering attributes to customer needs. Use of virtual customer communities helps to detect opportunities and service solution options.

2.4.10. Antecedents and consequences of CCSP

This section introduces the antecedents and consequences of CCSP. Identifying antecedents and consequences of CCSP is necessary to understand what enhances CCSP and what service firms can achieve as a result of their CCSP activities. To understand the antecedents and consequences of CCSP, Section 2.4.10.1 discusses the antecedents and consequences of CCSP from the customer perspective and Section 2.4.10.2 discusses the antecedents and consequences of CCSP from the service firm perspective.

2.4.10.1. The antecedents and consequences of CCSP from customer perspective

As noted in Section 2.4.10, this section examines the literature which seeks to identify the antecedents and consequences of CCSP from the customers' perspective. These findings are shown in the first part of Table 2.8. In particular, Table 2.8 (pp. 64) shows the range of antecedents identified by researchers of CCSP was less than the consequences of CCSP from the customers' perspective. Commitment, satisfaction, and identification are among the most studied antecedents of CCSP (So et al 2012; Auh et al. 2007; Algesheimer et al. 2005; Groth 2005; Gruen et al. 2000). Some researchers look at the cultural values and service locus of control as an antecedent of CCSP (Büttgen et al. 2012; Schumann, et al. 2012). Strong communication, client expertise, interaction justice, and customer socialisation are among other antecedents identified for CCSP from the customer perspective (Chan et al. 2010). Interestingly, while some researchers argue customer satisfaction is the consequence of CCSP (e.g., Gallan et al. 2013), others believe satisfaction is the antecedent of CCSP (e.g., Eisingerich et al. 2013).

Researchers appear to be more interested in measuring the consequences of CCSP. Consequences of CCSP are located in the second column of Table 2.8. Customer benefit (Gummerus et al. 2012), customer loyalty comprising attitudinal and behavioural loyalty (So et al 2012; Auh et al. (2007; Bennett et al. 2007, 2005) appear to be the most studied consequences of CCSP from the customer perspective. Employee

performance (Yi et al. 2011; Chan et al. 2010) and motivation to cooperate with the service firm (Büttgen et al. 2012; Dong et al. 2008) are among the second most studied consequences of CCSP. Other topics, such as service performance (Cheung and To 2011) and project performance (Shim et al. 2012) also attracted attention.

The fourth column with the title "Findings" in Table 2.8 presents information about the result of interaction between antecedents and the consequences of CCSP. The analysis provides three interesting results. First, the analysis of information presented in Table 2.8 shows that customers cooperate in the service provision process in which they experienced value previously (Bennett et al. 2005) or perceived they would capture value as the result of their cooperation (Gummerus et al. 2012; Chan et al. 2010). Further, customers might appreciate participating in the service provision process, if they have more control over the service provision process (Buttgen et al. 2012). The analysis of previous findings shows that customers cooperate when they have a clear idea of their role in the service provision process (Guo et al. 2013; Dong et al. 2008; Groth 2005) or they have a good and positive mood (Gallan et al. 2013).

Second, the result of the analysis of information provided in Table 2.8 reveals some contradictory findings about the relationship between CCSP and performance. The findings across different types of performance (e.g., sales performance or employee performance) are not consistent or appear to be contingent on other constructs. For example, one contradictory result seems to be about the relationship between CCSP and employee performance. Table 2.8 shows that while CCSP increases employee performance in the after sales services in electrical machine industries (Yi et al. 2011), it negatively affects employee performance in financial services due to increasing employee stress (Chan et al. 2010). However, Yi et al (2011) report that the relationship between CCSP and employee performance is contingent on similarities and likability between the customer and employees.

Further, a second contradictory result focused on the relationship between CCSP and service performance and financial performance. As shown in Table 2.8, Cheung and To (2011) did not report a strong effect for CCSP on service performance in the context of financial services. Further, Table 2.8 shows that Shim et al. (2012) focus on a variety of services context, showing that CCSP improve project development provided that the customer has a high level of expertise about the project. Interestingly, Ashley et al. (2011) report that CCSP significantly improves customer receptiveness to relational marketing programs in various types of service firms. In a similar vein, Eisingerich et al. (2013) show that customer satisfaction results in higher sales performance if the customer has enough expertise to cooperate with the financial service firm.

Third, analysing information in Table 2.8 reveals that the findings on CCSP across service contexts are somewhat different. The support for this conclusion , for example, evident in the research conducted by Auh et al. (2007). Auh et al. (2007) conduct a research in two different contexts (e.g., financial services and healthcare service). Their findings provide different results in each context. For instance, in the context of financial services they find that communication, client expertise, affective commitment, interaction justice are strong antecedents of CCSP. However, in healthcare Auh et al. (2007) do not find a significant relationship between affective commitment and interaction justice and CCSP. Further, this view is supported by Brodie et al. (2011) who contend that customer engagement, as the demonstration of CCSP, is context dependent.

2.4.10.2. The antecedents and consequences of CCSP from the service firm perspective

As noted in Section 2.4.10, this section examines the antecedents and consequences of CCSP from the service firm perspective. The antecedents and consequences of CCSP from the service firm perspective are limited due to limited attention given to this area. The second part of Table 2.8 demonstrates the antecedents and consequences of CCSP from the service firm perspectives. As shown in the first column of the second part of Table 2.8, the main antecedents of CCSP are reported as technical and non-technical innovation (Ngo and O'Cass 2013), application of ICT (Reay and Seddighi 2012), partner match, partner expertise, and affective commitment (Chen et al. 2011).

Consequences of CCSP are shown in the second column of Table 2.8. The information presented in Table 2.8, shows researchers have been more interested in studying the effect of CCSP on different types of performance than other organisational attributes (e.g., Eisingerich et al. 2013). The forms of performance identified in Table 2.8 including market success (Jacob 2006), service performance (O'Cass and Ngo 2011), financial performance (Ngo and O'Cass 2013; Chien and Chen 2010), and process performance in new service development (Chien and Chen 2010) and project performance (Wang et al. 2013). An examination of the second part of Table 2.8 reveals that service innovation is the other most studied areas with the CCSP service firm perspective (Reay and Seddighi 2012; Chen et al. 2011). Interestingly, while some researchers view innovation as a consequence of CCSP (Ngo and O'Cass 2013), others try to establish the effect of CCSP on innovation (Chien and Chen 2010).

Other findings presented in the "Finding" column of Table 2.8 shows both positive and negative relationships between CCSP and different types of performance.

The positive effects are mainly reported for the relationship between CCSP and service performance (e.g., customer perceived value, customer satisfaction, retention, and the like) and innovation. For example, Menon et al. (2005) show that CCSP improves service performance in the form of customer perception of value and Jacob (2006) reports a strong relationship between CCSP and market success in the form of customer satisfaction, customer retention, and WOM. Similarly, O'Cass and Ngo (2011) report strong effect of CCSP on the customer centric performance (couched in terms of customer retention, acquisition, satisfaction, and add on selling). O'Cass and Ngo (2011) view CCSP as a component of a higher-order construct, namely the value offering. The findings of Menon et al. (2005), Jacob (2006), and O'Cass and Ngo (2011) have some level of consistency, but a problem appears to arise because they conceptualise CCSP differently. For instance, O'Cass and Ngo (2011) consider CCSP as a part of value offerings and they do not report how much of the success of service performance depends on the role of CCSP as a part of value offering construct. On the other hand, Jacob (2006) looks at CCSP as a multifaceted construct constituted by control for efficiency competency, communication competency, and configuration competency related to integrating customer into service process. Finally, Menon et al. (2005) operationalise CCSP in the form of a simple first order construct.

Further, to understand the relationship between CCSP and innovation Chien and Chen (2010) show a strong relationship between CCSP and the performance of new service product/service process in financial services. Further, Chen et al. (2011) find positive and significant relationship between CCSP and service innovation. Consistent with previous research, Wang et al. (2013) report a positive relationship between CCSP and the project performance in the context of communication and engineering services. However, the reported results of the relationship between CCSP and financial performance are not as consistent as the relationship between CCSP, service performance and innovation as discussed above. Ngo and O'Cass (2013) reported no significant relationship between CCSP and financial performance, and they argue that the effect of CCSP on performance is indirect. However, Eisingerich et al. (2013) report that CCSP improve the relationship between customer satisfaction and objective sales performance in financial service firms. The findings of Eisingerich et al. (2013) is noticeable, because they measure CCSP from the customer perspective and examine its effect on the objective financial performance, which is found to be positive and significant. Further, some research shows that CCSP activities are sources of competitive advantage for service firms (Reay and Seddighi 2012).

Table 2.8
Antecedents and consequences of CCSP from customer perspective

Antecedents	*Consequences*	*Sector*	*Findings*	*Author*
Satisfaction, customer expertise	Sales performance	Financial services	Customer satisfaction improves sales performance, through participation and WOM, when customer expertise is high.	Eisingerich et al. (2013)
Customer positivity	Perceived service quality, customer satisfaction	Healthcare	Customer positivity increases the levels of participation.. In turn, higher levels of participation improve customer perceptions of the quality of the service provider and satisfaction.	Gallan et al. (2013)
Organisational socialisation processes (role clarity, task mastery, goal congruence)	Financial wellbeing and satisfaction	Financial services	Compliance has the greatest contribution to well-being, while both compliance and individual initiative enhance satisfaction with the organization.	Guo et al. (2013)
Motivation (customer orientation and customer perceived value), opportunity (customer socialisation), ability (customer technological capability	Project performance	Telecommunicatio n	It was determined that customer participation known as knowledge sharing has a direct and significant effect on project performance.	Wang et al. (2013)
CCSP (Identification, enthusiasm, attention, absorption, interaction)	behavioural intention of loyalty	Hospitality	CE significantly predict BIL	So et al (2012)
CCSP (Customer engagement behaviour (CEB) and transactional engagement behaviour (TEB).	Social benefit, economic benefit, entertainment	Online communities (game club)	The engagement behaviours largely influenced the benefits received. Furthermore, the mediation analysis results show that the influence of CEB on satisfaction is partially mediated by social benefits and entertainment benefits, while the effect of TEB on satisfaction is fully mediated through the same benefits.	Gummerus et al. (2012)
cultural value	Customer motivation to participate (provide information, follow advices)	professional services	Customers from more masculine cultures exhibit less motivation to contribute to the service provision process, none of the cultural values has a significant impact on the customers' motivation to follow advice.	Schumann, et al. (2012)

Table 2.8
Antecedents and consequences of CCSP from customer perspective

Antecedents	*Consequences*	*Sector*	*Findings*	*Author*
CCSP	Development Project Outcomes	variety of industries	There exists a significant relationship between coproduction and development project outcomes. Variables of locating expertise and applying expertise are partial mediators between coproduction and project outcomes.	Shim et al. (2012)
Internal SLOC, Powerful Others SLOC, Chance SLOC	Motivation to Coproduce and Coproduction Behaviour	medical strength training	Internal service locus of control (SLOC) beliefs has a positive impact on customers' motivation to coproduce. SLOC beliefs have a positive impact on customers' motivation to coproduce. Customers' motivation to coproduce in turn has a positive effect on their role consistent participation behaviour,	Büttgen et al. (2012)
Customer value co-creation behaviour	Customer participation behaviour (Information seeking, Information sharing, Personal interaction) and Customer citizenship behaviour (Feedback, Advocacy, Helping, Tolerance).	retailing, full-service restaurant, hair salons, health care facilities, and travel	The scale conforms to a third-order factor model that ties customer value co-creation behaviour to two distinct dimensions: participation and citizenship. Customer value co-creation behaviour seems to be a rich concept that a single measure cannot capture.	Yi and Gong (2012)
CCSP	employee performance, employee satisfaction, and employee commitment	electric service provide	the relationship between customer participation behaviour and employee satisfaction is particularly strong in the case of a high level of similarity and likeability with respect to customers	Yi et al. (2011)
CCSP	perceived service performance (tangibles, reliability, empathy, and assurance)	financial services	Customer involvement does affect perceived service performance. Coproduction doesn't mediate the relationship between involvement and perceived service performance.	Cheung and To (2011)

Continue: Table 2.8

Antecedents and consequences of CCSP from customer perspective

Antecedents	*Consequences*	*Sector*	*Findings*	*Author*
CCSP	Success of relationship building programs	Airlines, Hotels, Grocery Store, Restaurants, Cruise Lines, Casino, Dry Cleaning, Fast Food, Bank, and hairdresser/ Barber	Involvement, privacy concerns, and shopping frequency, significantly influence customer receptiveness to relational marketing programs.	Ashley et al. (2011)
CCSP	Employee performance.	financial services	Value creation improves customer satisfaction not CP. CP increases employees job stress	Chan et al. (2010)
CCSP	Customer's Intention toward Future Co-creation	financial services	Customer participation in service recovery is not a significant predictor of customer ability in future co-creation. Role clarity mediates the relationship between customer participation in recovery.	Dong et al. (2008)
CCSP	attitudinal brand loyalty	advertising	Customer involvement significantly contributed to the total explained variance in attitudinal brand loyalty. Customer experience mediate this relationship strongly	Bennett et al. (2007, 2005)
Communication, client expertise, affective commitment, interaction justice	Attitudinal loyalty, behaviour loyalty	financial services and health care	**First study:** **financial services** All antecedents are approved as antecedents of CCSP. Co-production is positively and significantly related to attitudinal loyalty. Co-production is positively but not significantly related to behavioural loyalty. **Second study:** **health care** Co-production is positively and significantly related to attitudinal loyalty. They Did not analyse the relationship between coproduction and behavioural loyalty because of lack of measure. Communication and expertise are strong antecedent of coproduction but affective commitment and interactional justice are positively but not significantly related to co-production.	Auh et al. (2007)

Continue: Table 2.8
Antecedents and consequences of CCSP from customer perspective

Antecedents	*Consequences*	*Sector*	*Findings*	*Author*
Customer socialisation and customer satisfaction.	CCSP	Internet shopping	Customer coproduction behaviour is more strongly predicted by customer socialisation than customer satisfaction.	Groth (2005)
Normative commitment, Continuance commitment,	Participation, Coproduction	Professional Associations	The largest direct effects were from core services performance, which affected both retention.	Gruen et al. (2000)
Identification	behavioural intentions: continuous, recommend, and participation	communities (Car club)	The effect of brand community identification on community engagement is strong and positive --- the effects of community engagement on all three behavioural intentions membership continuance, recommendation, and participation are significant.	Algesheimer et al. (2005)
commitment, Affective commitment	Participation, Coproduction	Professional Associations	and participation. Normative and affective commitment partially mediates the effects of selected relationship-building forts on coproduction and member participation.	Gruen et al. (2000)

Antecedents and consequences of CCSP from firm perspective

Application of ICT	innovation	Regional Development Agencies	co-creation activities help organisations to generate competitive advantage through the integration of customers' views into the organisations' key operations, making customers' ideas an input for product and process development.	Reay and Seddighi (2012)
technical and nontechnical innovation	firm financial performanc e	Different sectors	Customer participation partially mediates the relationship between non-technical innovation capability and service quality. Customer participation does not directly influence firm performance.	Ngo and O'Cass (2013)
partner match, partner expertise, affective commitment	service innovation	Financial services	The results show that co-production was significantly influenced by partner match, partner expertise, and affective commitment. co-production had a significant impact on service innovation. Innovation.	Chen, et al. (2011)

Continue: Table 2.8
Antecedents and consequences of CCSP from firm perspective

Antecedents	*Consequences*	*Sector*	*Findings*	*Author*
partner match, partner expertise, affective commitment	service innovation	Financial services	orientation showed a significant moderating effect on the relationship between co-production and service innovation.	Chen, et al. (2011)
CCSP	customer retention, acquisition, satisfaction , and add on selling	Different sectors	Co-creation is a part of value offering, where value offering significantly affects performance.	O'Cass and Ngo (2011)
CCSP	NSD (Financial performance, Process performance)	Financial services	Customer involvement has a significant positive effect on the NPD performance and cross-functional collaboration.	Chien and Chen (2010)
CCSP	higher-order dynamic capabilities	telecom	CCSP directly related to collaborative agility, CCSP directly related to entrepreneur agility. Collaboration agility competency directly related to CCSP Supported	Agarwal and Selen (2009)
CCSP	market success (customer satisfaction, customers retention, and WOM)	Chemical, environmental, electronics, mechanical engineering. IT/ telecom, Industrial services	26% of the variance of market success can be attributed to the influence of customer integration competence. Customer integration competence plays an important role for strategies of individualisation or customising goods and services.	Jacob (2006)
relational characteristics (trust, joint work),	customer value	Different service sector	In business relationships, joint working arrangements will help increase the business customer's perception of value received.	Menon, et al. (2005)

2.5. Discussion and conclusion

According to many scholars, customers have always been an important asset to the firms, particularly service firms (Rust et al. 2004; Srivastava et al. 1998). The significance of customers has become more important, as they become more knowledgeable and show greater interest in participating and controlling the service provision process (Büttgen et al. 2012; Prahalad and Ramaswamy 2004). The content

analysis of the literature on CCSP undertaken here sought to discover what researchers have done to explore the customer role in the service provision process. The content analysis focused on identification of general characteristics of studies, the focus of studies, type of respondents, the type of market, and method of data analysis (Sections 2.4.1 to 2.4.4). The analysis also focused identifying the terms used to address/examine CCSP, their definitions, their measurements, and the antecedents and consequences of CCSP (Sections 2.4.5 to 2.4.10). The underlying reason for this focus was to identify and clarify potential ambiguity around terms applied in CCSP as has been alluded to in previous literature (Brodie et al. 2011; Kumar et al. 2010).

The content analysis shows that the number of articles on CCSP has been increasing (Section 2.4.1, Figure 2.1) over the period the content analysis examined (2000 to 2013). Further, studies were published in several journals that are devoted to specific topics supporting the multidisciplinary nature of CCSP (Section 2.4.1, Table 2.1). Moreover, the review of the literature indicated that most of the research on CCSP is in the B2C context and from the customer perspective, while less attention is given to B2B and from the service firm's perspective (Section 2.4.2). Furthermore, the review of the literature suggested the geographical expansion of the research on CCSP and multicultural research on CCSP is needed (Section 2.4.2), because different people from different cultures may react to drivers of CCSP differently.

Given that CCSP is all about the service firm working with the customer, firms that provide high contact, customised service (e.g., professional service firms) are a more suitable context to examine and study CCSP (Section 2.4.2). The underlying reason for this conclusion is that in high contact service firms, such as professional service firms, the quality of the service depends on both sides, thus to get the best result both sides need to play their role with extra attention. Building on the findings drawn from the content analysis of CCSP it appears that studying high contact service firms provides knowledge that assist firms to achieve a better understanding of what the most necessary processes and mechanisms are in order to develop the ability to cooperate with customers. To achieve more accurate results and biased free multiple informant study design is the most appropriate approach (Section 2.4.4).

The content analysis provides a better view about the significance of relationships between CCSP and its antecedents and consequences. The findings of all studies examined in the content analysis did not provide a consistent result between the relationship between CCSP and some of the consequences of CCSP (e.g., financial performance). The inconsistency in the result might be due to the type of proposed relationships between CCSP and the probable consequences. For example, all studies proposed linear relationship between CCSP and the probable consequences (Section

2.4.4). While focusing on more than simple linear relationships between CCSP and its consequences would indicate that at which level cooperating with customers is beneficial and at which level it is detrimental for the service firms.

After obtaining a general view of the research on CCSP, the second part of the content analysis directed the attention toward identifying different streams of research in CCSP, where results are presented in Figures 2.4 and 2.5 and Table 2.4. Different streams of research on CCSP from different angles provided interesting results through content analysis of the literature on CCSP. The stream of research at the macro-level discussed firm versus customers. At the micro-level the other stream of research was identified based on terms researchers used to explain CCSP, such as engagement, co-creation, co-production, participation, and integration. Based on the definitions presented in Table 2.5, it appears that the lowest level of customer cooperation is involvement, which is about the customers' state of mind (e.g., Cheung and To 2011; Wu and Lo 2012; Hunt et al. 2012; Ashley et al. 2011; Lundkvist and Yakhlef 2004). Further, the highest level is engagement, which goes beyond the purchase and includes customers' post purchase behaviour (e.g., Van Doorn et al. 2010).

The review of the literature showed that co-creation, co-production, and participation mainly explain the customers' role as labour during service process based on the definitions provided in Table 2.5. Even though some researchers have tried to distinguish these three terms, overlap among them is high. For instance, researchers argue that co-production is different from co-creation and participation, because in co-production the customer cooperates with the firm within predefined parameters (e.g., ATM). However, co-production can be applied mainly to standardised services, because the expectations from customer cooperation is pre-defined and pre-designed by firms (e.g., check in at the airport). Further, researchers try to distinguish co-creation by specifically focusing on value creation. However, defining co-creation led to the conclusion that co-creation and engagement are not much different. Customer integration is another term applied in CCSP literature, which is considered as resource sharing and resource integration between a firm and its customers. However, the analysis showed that overlap among definition of different terms in CCSP is considerable.

One key issue identified in the content analysis (Section 2.4.7) is the extent that researchers use one of the terms identified in the CCSP literature to define another term used in CCSP. For example, researchers used the term participation to define the involvement construct or used term involvement to define engagement or participation construct. Employing one term to define another term shows that both terms are the same. This point is further supported through analysing the content of measurement

used to examine these terms in the literature (Table 2.6 and 2.7). The content analysis of measurements revealed that there is a lack of consistency in the literature between items that measure a specific term in CCSP and the definition of that specific term in the literature used by other researchers. For instance, some researchers consider no after purchase behaviours in their definitions of participation, co-creation, and co-production. However, some researchers use items in their measurements that focus on customers post purchase behaviour (Sections 2.4.9.1 and 2.4.9.2).

Further, the content analysis revealed that some researchers argue engagement is the best practice for firms as it is active cooperation and includes emotion, cognition and behaviour of customer, which extend beyond the duration of cooperation between the service firm and the customer and should last after finalising the purchase. Defining customer engagement in this way blurs the borders between customer engagement and customer co-creation in different studies. Some researchers apply the same dimensions for both co-creation and engagement, but distinguish customer co-creation by focusing on co-creation of value. However, some researchers argue co-creation is different from co-creation of value and co-creation of value only happens in customer sphere. Applying these terms in the way they are in the literature increases the confusion around different terms in CCSP literature.

Another important finding of this content analysis relates to the identifying antecedents and consequences of CCSP from the customer and the service firm perspectives. The findings revealed some contradictory results in different aspects. The contradictory results provide some support for the view that the effect of CCSP is context dependent or the relationship between CCSP and some of the consequences such as performance may not be linear. The premise of nonlinearity of the relationship between CCSP and the consequences of CCSP (e.g., different types of performance) strengthen the premise that service firms should consider the extent of CCSP.

Analysis of the antecedents and consequences of CCSP from firm perspectives showed that researchers place considerable attention on the effect of innovation on CCSP (Table 2.8), while other organisational antecedents of CCSP are largely ignored (e.g., knowledge, leadership, branding activities etc.). It is notable that the service firm should facilitate and encourage customers to cooperate in the service process. Thus, identifying facilitating mechanisms of CCSP in the service firms is as important as identifying customer motivation to cooperate with the service firm.

The content analysis presented here attempts to provide a foundation for empirical research to advance knowledge on CCSP in the context of PSFs. As noted by Brodie and Hollebeck (2011, p. 3), "*Knowledge …. will not advance unless the circle of scientific enquiry is used in the process of theorising, where middle range theory*

provides the bridge between general theory and empirical enquiry". As such, the findings of this chapter provide a foundation to theorise the effect of CCSP on organisational attributes and assist to connect theory to empirical enquiries in an effort to develop a theory applicable to PSFs and service solution.

Chapter Three

Literature Review

The review forms the foundation for the research proper. The researcher needs to know about the contributions others have made to the knowledge pool relevant to their topic. It is the ideas and work of others that will provide the researchers with the framework for their own work…

Hart 2003, p. 26-27

3.1. ***Introduction***

Faced with rapid economic changes and environmental volatility and uncertainty, many firms are striving to survive and remain competitive by developing their knowledge base and applying knowledge in their organisational processes (Siren et al. 2012; Lichtnthaler 2010; Greenwood et al. 2005; Grant 1996). Given the increasing importance of knowledge as a driver of competitive advantage, some researchers have attempted to apply the principles of organisational learning theory, where knowledge is processed and created inside the firm (e.g., Qian and Acs 2013; Kotabe et al. 2011; Liao and Wu 2010; Liao et al. 2010). Others, however, have paid more attention to better understand the organisational attributes of knowledge intensive firms, which are known as professional service firms (PSFs) - specialised service firms whose main task is the application of complex knowledge and creating knowledge (Greenwood et al. 2005).

Some researchers studying PSFs contend that many organisational theories are not applicable in the PSF context. They propose that PSFs require new theory or reconsidering existing management theories (see Greenwood et al. 2006; Lowendahl 2000). For example, Fenton and Pettigrew (2006) argue the role of leadership in PSFs is changing, because they have to coordinate and control greater complexity and dynamism to be able to provide greater standardisation of the quality of the service solutions they provide to their customers. Further, other research focusing on PSFs argues that due to the intangible nature of their services, PSFs should send strong signals (such as a strong brand) to customers to assure customers about the quality of the service (Jennings et al. 2006; Greenwood et al. 2005). Building on the above discussion, the convergence between relationship marketing theory, leadership theory, employee brand building theorising, and service branding may provide an effective lens for the interpretation and reinvention of theory in the domain of PSFs. Building on the suggestion proposed by Hart (2003), the literature review here provides a foundation to

develop the theory in the domain of PSFs. On the basis of Hart's (2003) view, the literature review undertaken here is related to solution, relationship marketing, branding, employees behaviours, and leadership to better understand the contributions others have made to the literature as a foundation for the development of the research framework that is provided in Chapter Four.

The literature review in this chapter encompasses two main Sections, focusing firstly on the broad domain of solution. Within this broad domain, the review focuses on the background and origin of the concept of service solution (Section 3.2), conceptualisations of solution (Section 3.3), and empirical research on solution (Section 3.4). The second main section of the literature review focuses on the domain of branding and brand equity (Section 3.5). Within the branding domain, service branding (Section 3.5.1) and specifically the role of leadership and employees (Sections 3.5.2 and 3.5.3) in service branding are reviewed. Conclusions drawn from the literature review are presented in Section 3.6.

3.2. Background and origin of the concept of service solution

The origin of the service solution concept can be traced to the early 1960s, with firms pursuing "systems selling" strategies (Mattson 1973; Hannaford 1976; Page and Siemplenski 1983; Dunn and Thomas 1986). According to Davies et al. (2007), system selling refers to the provision of products and services, where integrated systems assist business customers to operate their business. However, system selling appears to have evolved into solution selling, which represents a marketing strategy emphasising a move towards providing more complex solutions to help customer solve their business problems (Azimont et al. 1998).

Over time, it has become more widely acknowledged by academics and practitioners that customers are demanding more effective solutions that solve their complex business problems (Jaakkola and Hakanen 2013; Biggemann et al. 2013; Davies et al. 2007). As a result of changes in customers' demands, solution providers[2] have increasingly sought to offer integrated solutions that solve customers' business problem more comprehensively (Ferreira et al. 2013; Pawar et al. 2009; Davies et al. 2007; Cova and Salle 2007). This approach allows them to differentiate themselves in the market and improve their performance (Ferreira et al. 2013; Eggert et al. 2014 and 2011; Matthyssens and Vandenbempt 2008). An integrated solution is seen in the literature as the vertical integration in a network constituted by suppliers (e.g., PSFs)

[2] The term solution provider refers to manufacturers as well as PSFs. In the literature some researchers refer to solution providers as manufacturers transitioning to services, while others refer to PSFs. However, they are different entities.

and customers, where the supplier provides services to support its products during the product life cycle (Ceci and Prencipe 2008; Davies et al. 2007). In this sense, researchers believe that customers do not buy a system, but the "expectations of benefits a system provides for a customer over time" (Davies et al. 2007, p. 185).

However, solution providers are moving towards solutions offering, which is different from the concept of the integrated solution (Ferreira et al. 2013; Davies et al. 2007; Azimont et al. 1998). Some scholars differentiate the notion of an integrated solution and solution, in the sense that an "integrated solution solves customers' operational problems, while a solution provides strategic advice to develop the customer's business in the current market or potential markets" (Davies et al. 2007, p. 185). Other researchers distinguish an integrated solution from a solution by focusing on the high level of customisation in solution offerings (Johnson et al. 2003) and shared responsibility and information exchanged (Brady et al. 2005).

In the solution domain, researchers have sought to specify the specific characteristics of solutions. Some researchers, however, fail to make the distinction between solution offerings and other types of services such as industrial services (e.g., Kindstrom and Kowalkowski 2009; Oliva and Kallenberg 2003). Oliva and Kallenberg (2003), for instance, consider after sales services as service solutions and Kindstrom and Kowalkowski (2009) and Eggert et al. (2011 and 2014) consider industrial service offerings as solutions. Industrial services, according to Mathieu (2001) are categorised as (a) services supporting the supplier's product (SSP) and (b) services supporting the client's (SSC) action. In this context, Mathieu (2001) appears to distinguish SSP and SSC by the intensity of interactions between the supplier and customer and the level of customisation. Mathieu (2001) appears to believe that in SSC the intensity of interaction and customisation are higher than the intensity of interaction and customisation in SSP.

The argument raised by Mathieu (2001) seems to be the initiative for the latest evolution in solution domain, which focuses on improving and developing relationships between the solution provider and the customer even after delivering the solution. For example, researchers have contended that a solution represents a set of relational processes in which customer and solution provider work together to create a customised solution (Tuli et al. 2007; Galbraith 2002; Mathieu 2001). It is suggested by some that long term relationships with customers, increases the familiarity of the solution provider with the business customers' needs, which enables the solution provider to offer customers exactly what they need (Davies 2004). Storbacka et al. (2013) argue a "solution is a long-term process *with* the customer rather than *to* the customers" (p. 3). Other researchers such as, Brady et al. (2005) and Galbraith (2002) argue when the level of customisation of a solution increases, the relationship between the customer

and the solution provider should be strengthened. In particular, increasing the level of customisation is thought to result in an increasing level of cooperation with customers. The underlying reason is that customers need to accept more responsibility in the process of solution provision by sharing more knowledge and resources with the solution provider about their needs and what they expect from the solution provider (Brady et al. 2005). In this sense, Antioco et al. (2008) argue that the solution is designed and customised to the customers' need, when the solution provider and the customer interactively provide the solution. To highlight the importance of cooperation between solution provider and the customer, Tuli et al. (2007) suggest to achieve solutions that customers wish to have, a set of cooperative and step-wise relational processes are required. The relational processes assist the solution provider to understand customers' requirements, customise and integrate the solution, deploy the solution, and then support customers after delivering the solution on an ongoing basis (Tuli et al. 2007). It appears that the recent evolution on solution provision obliges solution providers to enhance their ability to cooperate with customers on an ongoing basis to be able to customise the solution to customers' needs and keep customers' on their side (Storbacka 2011).

Although there is growing interest in understanding the nature, components, and outcomes of solutions, researchers have viewed solution in differing ways. The underlying reason for the various views towards solution is found in the unique and distinct characteristics of solutions, which can vary based on the type of industry and the characteristics of solution providers and the customers. To clarify how solution is conceptualised in the literature, Section 3.3 reviews and analyses the definitions provided for solution in the literature.

3.3. Conceptualisation of solution

The review of the literature shows that while some researchers seek to conceptualise solution from the solution providers' perspective, others conceptualise it from the customer perspective and argue that customers and the solution providers have diverse (and different) views about solution (Tuli et al. 2007; Galbraith 2002). Galbraith (2002), for example, believes solution from the customer perspective is a limited form of outsourcing to solve their business problems, while the solution provider views solution as an alternative to products that commoditise rapidly. In a similar fashion to Galbraith (2002), Tuli et al. (2007) support the view that the customer and the solution providers view solution differently. Tuli et al. (2007) argue that a solution from the solution

providers' perspective is an integration of products and/or service, while a solution from the customer's point of view is a set of relational process.

Within the solution research domain, there appears to be a lack of cohesion afforded by a common terminology among researchers. Various concepts have been used to underpin and develop solution theory. Some of the concepts used to address solution in the literature include product service (Mathieu 2001), full service (Stremersch et al. 2001), functional products (Kumar and Kumar 2004), solutions (Cova and Salle 2008; Galbraith 2002), hybrid offerings (Ulaga and Reinartz 2011), and integrated solutions (Davies et al. 2007). This implies that while researchers attempt to examine solution, different labels and concepts have been used. However, while diverse concepts have been used to study solutions, there are some commonalities across the conceptualisation of solution and solution research in general.

Table 3.1 represents examples of the diverse conceptualisations of solution found in the literature. An examination of Table 3.1 shows that various researchers in the solution domain refer to a solution as the combination or integration of products and/or services that are tailored and customised to the customers' problems (e.g., Nordin and Kowalkowski 2010; Windahl and Lakemond 2010; Kindstrom and Kowalkowski 2009; Fang et al. 2008; Ceci and Prencipe 2008; Davies et al. 2007; Sawhney 2006; Foote et al. 2001). These researchers believe that services complement the product offered by manufacture. Recently, researchers appear to include knowledge (Windahl and Lakemond 2010) and information (Sawhney et al. 2006) as two components of a solution. The only two exceptions in the literature that views solution as a bundle of only integrated services is Cova and Salle (2008). Cova and Salle (2008) adopt the service dominant logic view and propose that all products offer services and all firms provide service embedded in the products.

As noted in Table 3.1, defining solution as a combination or an integration of products and/or services is dominant in the literature, however; conceptualising solution as a "process" is gaining more interest (Hakanen and Jaakkola 2012; Tuli et al. 2007). Tuli et al. (2007) view solution as a set of relational processes in which the customer and the solution provider work together to provide the solution. In the view of Tuli et al. (2007) solution is designed, customised, and deployed through the relationship between the solution provider and the customer. In their view, it is not clear if the solution is the relationship or the consequences of relationships. Hakanen and Jaakkola (2012) are among the group of researchers who believe solution is a process, but have different views to Tuli et al. (2007). While Tuli et al. (2007) view solution as a relational process, Hakanen and Jaakkola (2012) view solution as a process that product, service, and/or knowledge components are integrated into offerings. However, in the work of Hakanen

and Jaakkola (2012) similarly to Tuli et al. (2007), there is ambiguity around conceptualisation of solution. Ambiguity exists in the sense that if a solution is a process where different components such as knowledge and other resources are integrated to provide the solution, what is the output of this process that solves business customers' problem and satisfies their need?

The above conclusion defining solution as a process has some merit. The review of conceptualisations outlined in Table 3.1 shows that the majority of researchers appear to advance the view that the solution solves customers' business problems (Gebauer et al. 2013; Nordin and Kowalkowski 2010; Windahl and Lakemond 2010; Cova and Salle 2007; Pawar et al. 2009; Galbraith 2002; Miller et al. 2002; Foote et al. 2001). The conceptualisation of solution as a process is surprising, because the process is not something that solves customer problem, but the output of the process is what solves the customer's problem. Edvardsson and Olsson (1996) argue that the outcome of the service process is what the customer actually receives and what the customer perceives. Building on Edvardsson and Olsson's argument, conceptualising solution as a process might be problematic.

Table 3.1
Definitions of solution in the literature

Author	Term	Definition
Foote et al. (2001)	Solution	"Integrating various products and services-even merging the supplier's and the customer's operations to solve a complete customer problem" (p. 84).
Mathieu (2001)	Product services	"Service which supports the supplier's product and a service which supports the client's action in relation to the supplier's product" (p. 40).
Stremersch et al. (2001)	Full services	"A comprehensive bundle of products and/or services, that fully satisfies the needs and wants of a customer related to a specific event or problem"(p. 2)
Galbraith (2002)	Solution	"For the customer, solutions constitute a limited form of outsourcing, which allows them to focus on their core business. For the suppliers, solutions constitute an alternative to products that commoditise rapidly" (p. 3).
Miller et al. (2002)	Solution	"An integrated combination of products and/or services that are unusually tailored to create outcomes desired by specific clients or types of clients (p.3).
Johansson, Krishnamurthy, and Schlissberg (2003)	Solution	"A solution is a combination of products and services that creates value beyond the sum of its parts" (p. 118).
Sawhney (2006)	Solution	"an integrated combination of products and services customised for a set of customers that allows customers to achieve better outcomes than the sum of the individual components" (p. 369).
Sawhney, Wolcott, and Arroniz (2006)	Solution	"A solution is a customised, integrated combination of products, services and information that solves a customer's problem" (p. 78).
Davies, Brady, and Hobday (2006)	Integrated solution	'A solution involves the provision of tailored combinations of products and services as high-value 'integrated solutions' that address the specific needs of large business and government customers" (p. 1).

Continue: Table 3.1

Definitions of solution in the literature

Author	Term	Definition
Tuli et al. (2007)	Customer solution	"A set of customer–supplier relational processes comprising (1) customer requirements definition, (2) customisation and integration of goods and/or services and (3) their deployment, and (4) post deployment customer support, all of which are aimed at meeting customers' business needs" (p.5).
Cova and Salle (2008)	Solution	"When we talk about B2B solutions, we refer essentially to an offering that incorporates a number of integrated services into the customer's value chain and that forms a non-dissociable whole: an integrated solution" (p.272).
Ceci and Prencipe (2008)	Integrated solution	''A business model that combines products and services into a seamless offering that addresses a pressing customer need" (p. 277).
Nordin and Kowalkowski (2010)	Solution	"A solution is described as a product-service bundle that is customer driven and derived from explicit customer needs at a specific point in time" (p. 442).
Windahl and Lakemond (2010)	Integrated solution	"A combination of physical products or services, or both, plus knowledge are used to provide a specific outcome fulfilling the customers' needs" (p. 1278).
Evanschitzky et al. (2011)	Solution	"Individualised offers for complex customer problems that are interactively designed and whose components offer an integrative added value by combining products and/or services so that the value is more than the sum of the components"(p. 659).
Ulaga and Reinartz (2011)	Hybrid solutions	"Hybrid solutions are products and services combined into innovative offerings" (p. 5).
Storbacka (2011)	Solution	"Focuses on 'integrated solutions', defined as longitudinal relational processes, during which a solution provider integrates goods, service and knowledge components into unique combinations that solve strategically important customer specific problems, and is compensated on the basis of the customer's value-in-use" (p. 699).
Spencer and Cova (2012)	Solution	"Reciprocal market shaping process where value is created for supplier and customer (and their related network actors) plus other market actors" (p. 1583).
Hakanen and Jaakkola (2012)	Solution	"Solution" refers to a process during which product, service, and/or knowledge components are integrated into offerings that meet needs of a specific customer or type of customer.
Gebauer et al. (2013)	Solution	"Solutions encapsulate the product and service components that are necessary to provide unified responses to operational and business needs of customers" (p. 32).
Ferreira et al. (2013)	Business solution	"Solutions refer essentially to an offering that incorporates a number of integrated services into the customer's value chain and that forms a non-dissociable whole" (P. 2).

3.4. Empirical research on solution

The extant research on solution has commonly employed qualitative approaches to explore how solution providers provide superior solutions to their customers. While one group of researchers attempts to identify the customers' role, responsibilities, and expectations from the solution provider; others attempt to identify the required resources and processes that facilitate providing superior solutions (e.g., Storbacka et al. 2013;

Aarikka-Stenroos and Jaakkola 2012; Storbacka 2011; Kapletia and Probert 2010; Brax and Jonsson 2009; Tuli et al. 2007). To this end, two different streams of research are identified here with regard to the provision of superior solutions. The first stream of research focuses on the importance of the relationship throughout the solution provision process and is labelled here as relational based research (Section 3.4.1). The second stream of research focuses on the specific characteristics of solution and attempts to identify consequences and antecedents of superior solutions (Section 3.4.2).

3.4.1. ***Relational based research on solution***

A close examination of the solution literature indicates that scholars within the relational based research stream seek to outline the importance of relationship from two different points of view. Within the relational based research stream, two different types of relationships are identified as internal relationships and external relationships. The first group of researchers focuses on external relationships, especially with customers to facilitate cooperation between business customers and solution provider (e.g., Storbacka et al. 2013; Aarikka-Stenroos and Jaakkola 2012; Storbacka 2011). The relational research stream, with its focus on relationships with customers, adopts the view that customer cooperation is critical throughout the solution provision process to provide a superior solution. It also identifies the customer as the co-creator or co-producer of solution (e.g., Storbacka et al. 2013; Aarikka-Stenroos and Jaakkola 2012; Storbacka 2011; Kapletia and Probert 2010; Pawar et al. 2009; Brax and Jonsson 2009: Tuli et al. 2007; Davis et al. 2007; Miller et al. 2002). These researchers contend that through cooperation, the customer and the solution provider integrate their resources to develop and provide the solution (Aarikka-Stenroos and Jaakkola 2012). In this sense, the aim of resource integration is to provide a superior solution that is customised to a specific customer to solve their business problem most effectively (Aarikka-Stenroos and Jaakkola 2012; Nordin and Kowalkowski 2010; Davies et al. 2007; Helander and Möller 2007).

However, another group of researchers focuses on the importance of the internal relationship and argue that solution providers should enhance the internal relationship to develop superior solutions (Galbraith 2002; Windahl and Lakemond 2006). Galbraith (2002) and Windahl and Lakemond (2006) show that both internal relationships (e.g., between different business units or employees) and external relationship (e.g., relationship with customers) are critical to offer superior solutions to customers. In a conceptual paper, Galbraith (2002) takes the view of developing internal relationships to enhance external relationships with customers. Galbraith (2002) proposes that solution

providers should be customer focused; therefore they need to have special organisational structure and processes. Galbraith introduces the star model constituting strategy, structure, process, rewards, and people as key elements to have a customer focused organisational structure. He believes that a solution provider should be customer focused to offer a solution that solves business customer's problem. Galbraith (2002), specifically, focuses on the role of motivational leadership style to improve internal cohesiveness and decrease the internal conflicts between different units across the solution provider through solution provision process. However, Windahl and Lakemond (2006) have a different approach compared to Galbraith (2002). Windahl and Lakemond (2006) using case studies illustrate challenges and possible success factors for the development of solutions in the capital goods industry. They argue that solution providers need to improve the innovativeness of the solution to offer superior solutions to customers. Therefore, solution providers need to pay extra attention to internal relationships and exchanging ideas to be capable to offer an innovative solution. They contend that providing innovative solutions requires the combination and application of capabilities and in this area the inter-firm relationship should be paramount. Further, the inter-firm relationship is more critical to utilise information obtained from external sources and employ combinations of different capabilities across the solution provider to provide innovative solutions to customers.

While Galbraith (2002) and Windahl and Lakemond (2006) try to illustrate the importance of internal relationships for offering superior solutions, others focus on developing external relationships with customers to offer superior customised solutions that address business customers need. In this area, researchers tried to understand different types of relationship between customers and the solution provider (Töllner et al. 2011; Tuli et al. 2007), as well as the different roles that the customer and the solution provider perform in the solution provision process (Aarikka-Stenroos and Jaakkola 2012; Helander and Möller 2007). Tuli et al (2007) interview 49 managers in the business customer firms and 55 managers in the solution provider firms across different service sectors (e.g., health care, real estate). Tuli et al. (2007) identify four layers of relationships between the customer and the solution provider as: 1) requirements definition, 2) customisation and integration, 3) deployment, and 4) post-deployment support. They specifically point to the importance of the post purchase support relationship, and report most customers believe solution providers do not pay enough attention to post-deployment support. Tuli et al. (2007) contend that the relationship between the solution provider and the customer is a long lasting and may last after purchase, because customers may need after sales services (e.g., maintenance, training).

Consistent with Tuli et al. (2007), Töllner et al. (2011) conducted 17 in-depth interviews with different individuals in nine business customer firms, in capital goods industry to understand what criteria customers consider to select a solution provider. The work of Töllner et al. (2011) confirms the work of Tuli et al. (2007) by showing that the four types of relationships (e.g., requirements definition, customisation and integration, deployment, and post-deployment support) between the solution provider and customers exist. However, they extend the work of Tuli et al. (2007) by introducing the importance of signalling activities that focuses on the level of commitment and integrity of the solution provider and inter-process management. Töllner et al. (2011) argue that the inter-process management can be applied to provide a superior solution for customers and is about time management, coordination, incorporation, and proactive support. The findings of Töllner et al. (2011) on inter-process management are distinguished, as they illustrate the importance of the internal relationship from the customer perspective, which is consistent with the view of Galbraith (2002) and Windahl and Lakemond (2006). In particular, their findings show that internal coordination, which is the result of internal relationship, is one of the most important criteria that affect the customers' purchase decision.

Importantly, while Töllner et al. (2011) and Tuli et al. (2007) explore different types of relationships between the business customer and the solution provider through the solution provision process, Aarikka-Stenroos and Jaakkola (2012) focus on identifying the customer role through the solution provision process. Aarikka-Stenroos and Jaakkola (2012) drawing from interviews of 120 professional service firms and customers and propose that the solution provider and the customer solve problems in a dyadic relationship. Aarikka-Stenroos and Jaakkola (2012) identify seven different roles for customers, focusing on the customer as the co-diagnoser, co-designer, co-producer, co-developer, co-implementer, and co-marketer. Importantly, Aarikka-Stenroos and Jaakkola (2012) extend the role of customers as the user of exchanged resources to the co-creator of the solution. The findings of Aarikka-Stenroos and Jaakkola (2012) are consistent with the contention raised by Helander and Möller (2007) who introduce customers as the co-creator of solutions.

The literature review in this section identifies specific points, such as the importance of internal relationship to provide superior solutions as well as establishing the successful relationship with customers. The review here shows that effective internal relationships and coordination is one of the most important factors that affect customer purchase decision making. It seems the result of internal coordination on customer purchase decision making is due to the development of quality service solutions, quality of relationship with customers, and meeting timelines promised to customers. Further,

effective internal relationships affect the superiority of a solution by exchanging ideas and developing innovative solutions (Galbraith 2002; Windahl and Lakemond 2006). Moreover, the literature review identifies that the customer role in the solution provision process is more than being just the recipient of the solution. The customer role is extended from designing the solution to co-marketing of the solution, which emphasises high interdependency between the customer and the solution provider in providing superior solutions. While the studies discussed in Section 3.4.1 focus on the importance of relationships to provide superior solutions, other groups of researchers try to understand what internal processes facilitates the relationship between the customer and the solution provider. Thus, Section 3.4.2 reviews the literature to understand what resources and processes are required to develop effective relationships between the customer and the solution provider.

3.4.2. ***Antecedent and consequences of superior solution***

The second stream of research identified in the solution domain focuses on the specific characteristics of solutions and attempts to identify the consequences and the antecedents of superior solutions. An analysis of the solution literature shows that solution providers need to have specific resources and processes that facilitate the solution provision process and improving their performance. Within the second stream of research identified here, two groups of researchers are identified. The first group of researchers tends to focus on understanding the consequences of solutions for the solution provider and their performance, and the second group attempts to understand the antecedents of solution provision.

3.4.2.1. ***Consequences of superior solution***

The first group of researchers who are interested in understanding the consequences of superior solution, sought to examine the effect of solution on growth, profitability (Eggert et al. 2014, 2011; Homburg et al. 2003), and firm value (Fang et al. 2008). Researchers within this group employ different approaches to measure solution provider performance. While some use objective data (Eggert et al. 2014, 2011; Fang et al. 2008), others use subjective data (Homburg et al. 2003). Interestingly, these researchers view solutions as industrial services and classify them as service support product (SSP) and service support client (SSC) (Mathieu 2001; Eggert et al. 2014). However, some researchers believe viewing solutions as industrial services is a very limited view towards the solutions (Nordin and Kowalkowski 2010).

Fang et al. (2008) show that at the beginning of providing solutions in the form of industrial service, the solution provider value (firm value) remains relatively flat or slightly negative until the solution provider reaches a critical mass of service sales, after which point they have an increasingly positive effect on firm value. The findings of Eggert et al. (2014) suggest that SSC and SSP affect performance outcomes in different ways. While SSCs directly affects revenue and profit streams, SSPs display only indirect effects on financial performance mediated through SSCs. Eggert et al. (2014) report that only solution providers that have a high share of loyal customers can expect favourable financial results from industrial services. Homburg et al. (2003) adopt a different view to measure the consequences of solution by relating the effect of the number of industrial services on relationship quality and consequently on profitability. Homburg et al. (2003) believe industrial services create profit, when there is a strong service orientation culture and high quality relationship with customers. The findings of Eggert et al. (2014) and Homburg et al. (2003) are consistent in the sense that both believe the solution in the form of industrial services improves profitability when there is a good relationship between the solution provider and the customer.

The literature review in the domain of solution provides consistent results in relation to the solution provider's performance (e.g., profitability, revenue, firm value); however, research in this domain is still limited in number and scope of studies. It is narrow in scope as industrial services are some part of the solution. However, the findings are consistent in the sense that the important factors to improve solution provider financial performance is the strength of the relationship between solution provider and the customer.

3.4.2.2. Antecedents of solution provision

Within the second group of researchers, some researchers focus on identifying resources that are necessary to develop superior solution and others focus on resources that are necessary to improve customer cooperation. The process of customer cooperation has received extensive attention, because resource integration between the customer and the solution provider occurs (Aarikka-Stenroos and Jaakkola 2012; Jacob 2006). Yet, the premise whether customer cooperation positively affects superior solution is not empirically tested. Among the resources identified by researchers; knowledge (Delbufalo 2013; Lettice et al. 2014; Chae 2012; Treem 2012; Swart and Kinnie 2012; Aarikka-Stenroos and Jaakkola 2012; Von Nordenflycht 2010; Swart and Kinnie 2010; Jensen et al. 2010) and relational resources (Storbacka et al. 2013; Aarikka-Stenroos and Jaakkola 2012; Macdonald et al. 2011; Amonini et al. 2010;

Spekman and Carraway 2006; Greenwood et al. 2005) are noted as the most important resources solution provider needs to develop superior solutions.

Knowledge. The first resource identified as the foundation of superior solutions is knowledge (Swart and Kinnie 2012; Von Nordenflycht 2010; Kim and Gong 2009; Maister 1983). The knowledge-based view of the firm (KBV) explains that knowledge is the primary resource to create new offerings (Barney 1991; Grant 1996). KBV is built on the premise that consumer preferences and identity are changing continuously; as such, firms cannot rely on their internal knowledge and are required to expand their knowledge over the borders of their firm (Grant 1991). In their quest to satisfy customers' preferences, researchers argue firms need to have customer knowledge (Arnold et al. 2010; Day 1994) and expertise knowledge to provide the offerings that satisfies customers' preferences and needs (Li and Zhou 2012; Prabhu et al. 2005; Grant 1991). Reviewing the KBV literature shows, while researchers agree on the importance of knowledge acquisition to overcome the threat of environmental changes, others raise the importance of facilitating knowledge transfer across the firm to improve organisational knowledge (Asmussen et al. 2013; Flatten et al. 2011; Kostopoulos et al. 2010; Zahra and George 2002; Grant 1996; Cohen and Levinthal 1990).

In solution literature, different researchers view knowledge from different perspectives (e.g., expertise knowledge, customer knowledge, competitor knowledge). In the solution literature, while some specifically focus on knowledge residing in individuals, others focus on the organisational knowledge. Aarikka-Stenroos and Jaakkola (2012) view knowledge as expertise knowledge, which is necessary to diagnose the customer's problem and provide the solution to solve the problem. However, they do not specifically state whether the organisational knowledge is important for solution providers or knowledge resided in individuals. The solution literature supports the importance of knowledge residing in individuals to develop solutions (Swart and Kinnie 2012; Von Nordenflycht 2010; Kim and Gong 2009; Maister 1983). Von Nordenflycht (2010) conceptually argues to develop superior solution the important type of knowledge in solution providers is the knowledge resided in individuals. Kim and Gong (2009) argue that employees use their knowledge to provide a unique solution that cannot be easily imitated by competitors.

However, Chae (2010) and Lettice et al. (2014) have different views compared to the view of Swart and Kinnie (2012), Von Nordenflycht (2010), and Kim and Gong (2009) and argue that developing organisational knowledge is important to provide solutions. In a conceptual work, Chae (2012) focuses on different search modes and take a broader perspective and proposes that solution providers should expand their horizon and be ambidextrous by searching for knowledge both inside and outside of the neighbourhood

of their knowledge to acquire knowledge required for providing superior solutions. However, the findings of Jensen et al. (2012) in the PSF context shows there is not much emphasis on developing the knowledge skills of the expert employee beyond what is needed for them to work on projects. The findings of Jensen et al. (2012) show there is a distinct pull towards using the current knowledge pool to response to customer needs. These two works are interesting as Chae (2012) suggests PSF should be looking for knowledge beyond their expertise, but the case study of Jensen et al. (2012) shows PSFs do not really appreciate going beyond their needs to obtain knowledge.

While Chae (2012) proposes that pursuing different knowledge modes are necessary to improve organisational knowledge, others argue the acquired knowledge by the solution provider and knowledge residing in individuals should be integrated and casted within (and across) the solution providers' firm to provide superior solutions. In the solution domain, it appears that knowledge exchange within (and across) the solution provider is an important determinant of organisational knowledge and superior solution.

In the solution literature, while some focus on individual knowledge (e.g., Von Nordenflycht 2010), others focus on organisational knowledge (e.g., Chae 2012), Treem (2012) uses case studies in an attempt to understand the connections between individuals' knowledge and organisational knowledge. Treem (2012) shows organisational knowledge is created when the individuals' knowledge is communicated across the solution provider. It seems Treem (2012) and Lettice et al. (2014) agree on knowledge exchange across the solution provider. However, Treem (2012) and Lettice et al. (2014) use different terminology to demonstrate the importance of knowledge exchange. While Treem (2012) uses communication, Lettice et al. (2014) apply the principles of market orientation and uses knowledge dissemination as a mechanism to exchange knowledge across the PSF. However, both terminologies focus on the level of knowledge that is integrated and cast across the solution provider to provide superior service solutions. Among these researchers, Lettice et al.'s (2014) work is the only research that uses the market orientation (including knowledge generation, knowledge creation, and knowledge dissemination) to measure the knowledge at organisational level.

Taking into consideration the contention raised above, it is useful for solution providers to develop organisational knowledge instead of exclusively relying on individual knowledge. The underlying reason for this conclusion rests on the mobility of employees across different solution providers. The underlying reason for this conclusion is that if individuals leave a solution provider, they take their knowledge to another solution provider. Thus, the ability of a solution provider to provide a consistent solution

may decrease, when an expert employee leaves the firm or moves to another firm. As such, it is important that solution providers not only acquire knowledge, but employ mechanisms that facilitate knowledge dissemination and knowledge analysis across the solution provider. This conclusion is consistent with the findings in the domain of new product research. De Luca and Atuahene-Gima (2007) argue that both deep and broad market knowledge should be acquired and managed to drive new product success. In their view knowledge management occur when the firm analyses and casts the knowledge through formal meetings and discussions. Arnold et al. (2011) adopt an alternate view and look at the depth and breadth of customer knowledge on innovation in services. Arnold et al. (2011) found a positive and significant effect between depth and breadth of customer knowledge and radical and incremental innovation. Given that a solution is unique to any business customers, it can be considered equivalent to a new product or service innovation that requires effective knowledge acquisition and knowledge management.

Relational resources. The second identified resource here to develop customer cooperation and consequently provide a superior service solution is relational resources. Relational resources are considered important, because they encourage customers to cooperate with the solution provider by reducing the risk associated with solutions (Storbacka et al. 2013; Aarikka-Stenroos and Jaakkola 2012; Macdonald et al. 2011; Spekman and Carraway 2006). In a qualitative study, Storbacka et al. (2013) introduce customer embeddedness as a process to establish and maintain relationship with customers. Storbacka et al. (2013) raise the contention that if solution providers expect to develop their relationship with customers, they have to enhance their expertise knowledge bases. However, through interview based research, other researchers identify commitment and integrity of the solution provider (Ferreira et al. 2013; Aarikka-Stenroos and Jaakkola 2012; Töllner et al. 2011) and the level of customers' trust to the solution provider (Macdonald et al. 2011; Spekman and Carraway 2006) are among the most important relational resources required to maintain effective relationships with customers.

The other group of researchers who examine the role of relational resources in developing the relationship with customers focus on the importance of reputation (Greenwood et al. 2005) and the brand of solution provider (Amonini et al. 2010). Greenwood et al. (2005) argue reputation is important to solution providers, because it serves as a social signal to customer experiencing uncertainty arising from information asymmetry. In the same vein, Amonini et al. (2010) interviewed 37 senior managers in professional service firms and found that a strong brand and reputation are critical factors to develop the relationship with customers. Even though brand and reputation

are two different phenomena, both focus on the important role of credibility of the solution provider to decrease the customer's uncertainty and risk associated with purchasing solutions.

Researchers who focus on relational resources (e.g., commitment, trust, brand, and reputation) assert that when a solution is associated with high risks, these types of relational resources assist the customer to overcome those associated risks. Amonini et al. (2010) argue that solution purchasing is always associated with high risk and uncertainty. In some specific types of solution providers such as PSFs the uncertainty associated with purchasing the solution is more visible. The visibile uncertainty in the consumption of solutions provided by PSFs is the result of extreme intangibility of the solution, which makes the evaluation of the solution and decision making to purchase the solution so difficult (Lowendahl 2000; Maister 1993). Further, the low level of standardisation of the solution increases the uncertainty associated with purchasing the solution (Amonini et al. 2010). To this end, the solution provider and the customer need to overcome the challenges associated with high level of uncertainty in solution selling and solution purchasing.

Greenwood et al. (2005) argue the critical challenge for a solution provider is to convince the customer to purchase a superior solution and the key challenge for the customer is making sense of the claim the solution provider makes. To resolve these challenges, Amonini et al. (2010) view developing a strong brand as a winning criterion to overcome the perceived risk of making an incorrect purchase decision. The brand, especially in the context of services, serves as a proxy for the service firm's capabilities, quality, value, and other buying criteria that cannot be evaluated easily prior to purchase because of the intangibility of the service (Wang et al. 2003; Bhardwaj et al. 1993; Dibb and Simkin 1993; Shostack 1977).

3.5. Branding and brand equity

According to many scholars, the brand is an essential possession of all businesses (Golicic et al. 2012; Amonini et al. 2010; Brodie et al. 2006; Lynch and de Chernatony 2004; de Chernatony 1999). Kotler (1991, p. 442) defines a brand as "a name, term, sign, symbol, design, or a combination of them, which is intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competitors". de Chernatony and Dall'Olmo Riley (1998) argue that a brand is a multidimensional construct that illustrate the values of the brand and can facilitate the process by which consumers confidently recognise and appreciate these values. de Chernatony (2002) extends this view by proposing that a brand for customers is a

unique welcome promise comprising a bundle of functional value (e.g., cognitive based) and emotional value (e.g., peace of mind, security).

An examination of the branding literature reveals that the consequences of perceived value from using the brand encourage customers to take some positive and constructive actions towards service firm (Bruhn et al. 2014; Santos-Vijande et al. 2013; Leek and Christodoulides 2011; van Doorn et al. 2010; Kumar et al. 2010; Keller 2003; Ambler et al. 2002; de Chernatony and Dall'Olmo Riley 1998). There is consensus among scholars that the customers' response towards brand results in increasing the value of the brand or brand equity of the service firm (Bruhn et al. 2014; Santos-Vijande et al. 2013; Brodie et al. 2006; Lynch and de Chernatony 2004; Berry 2000; de Chernatony 1999; de Chernatony and Dall'Olmo Riley 1998). Within branding domain brand equity represents the incremental discounted future cash flows resulting from a service having its brand name (Ambler et al. 2002). Reviewing the branding literature shows that brand equity is a complex and multi-faceted concept and, as such, it needs to be captured through a set of measures rather than a single measure (Santos-Vijande et al. 2013; Christodoulides and de Chernatony 2010). Consistent with the argument raised by Christodoulides and de Chernatony **(**2010) on the multi-faceted nature of brand equity Santos-Vijande et al. (2013) point out three different facets for brand equity in the context of PSFs focusing on the customer mindset, customer strength, and shareholder value.

Within the branding literature, two popular terms have emerged and have been used to explain and measure brand equity. They are customer based brand equity (Santos-Vijande et al. 2013; Brodie et al. 2006; Lynch and de Chematony 2004; Berry 2000; de Chematony 1999; de Chernatony and Dall'Olmo Riley 1998) and firm based brand equity (Santos-Vijande et al. 2013; Baumgarth and Schmidt 2010, Christodoulides and de Chernatony 2010). While, customer based brand equity encompasses customer responses to the brand (e.g., commitment, satisfaction, trust) (Ambler et al. 2002; Keller 1993), firm based brand equity focuses on market share and profitability of the brand (Christodoulides and de Chernatony 2010). Two concepts, customer based brand equity and firm based brand equity are discussed here with the specific focus on the B2B domain to meet the requirement of this research on PSFs as discussed in Chapter One.

Customer based brand equity in the context of B2B. When focusing on customer based brand equity in the B2B context, many researchers employ the model of customer based brand equity developed by Keller (1993) which was originally developed in the B2C contexts (e.g., Kotler and Pfoertsch 2006; Michell et al. 2001). However, Kuhn et al. (2008) contend that Keller (1993) ignores elements relating to support

services (e.g., relationship with employees), elements related to firm performance (e.g., profitability, market share and reputation), technical capability, delivery reliability, and responsiveness. Thus, this model does not possess strong generalisability to B2B domain. In the view proposed by Kuhn et al. (2008), these elements (support services, firm performance, technical capability, delivery reliability and responsiveness) may have greater importance in the B2B context to create customer responses due to the different nature of B2B purchase decision making (e.g., rationality of decision making). Further, Kuhn et al. (2008) refer to the nature of decision making in B2B purchasing and argue some dimensions of the framework proposed by Keller (1993) such as the customer feelings towards a brand are less relevant to B2B branding. A similar argument has been raised by Biedenbach and Marell (2009) who believe brand awareness is not relevant in the B2B context. Biedenbach and Marell (2009) argue that there are a few numbers of actors in the B2B market that are familiar with each other, thus brand awareness is irrelevant to B2B context.

Further, the findings of Davis et al. (2008) support the view of Kuhn et al. (2008) and Biedenbach and Marell (2009). The findings of Davis et al. (2008) show that brand image from the B2B customer perspective is the most important element in B2B decision making compared to brand awareness, as brand image is a representative of the quality of the service. The findings of Davis et al. (2008) are also consistent with the work of Kuhn et al. (2008), Bendixen et al. (2004), Michell et al. (2001), and Thompson et al. (1997) who believe quality, reliability, performance and service are primary factors for building customer based brand equity (e.g., brand loyalty and commitment) in the B2B context.

Research on the customer based brand equity in the B2B context mainly focuses on developing and maintaining a long-term relationship with customers (Juntunen et al. 2010; Grant et al. 2009; Biedenbach and Marell 2009). The main reason for this focus is related to the nature of industrial buying that involves long-term relationships between buyers and sellers (Glynn et al. 2007; Morgan and Hunt 1994). The customer's desire to stay in the relationship is called customer commitment (Walter and Ritter 2003). Morgan and Hunt (1994) believe in the context of B2B relationships, customer commitment to the relationship is the most important determinant of firm performance. Morgan and Hunt (1994) justify their argument by reasoning that customer commitment is a demonstration of the customer's propensity to stay with the firm, cooperate with the firm, and complain less. This point has been raised by Walter and Ritter (2003) who argue that customer commitment reflects how exchange partner believe in an ongoing relationship with another. In this sense, each involved party maximises its effort to maintain the relationship. In the same line of thought, Walter and Ritter (2003) show

that customer commitment is an important factor to understand business relationship and is a strong source of value creation for both the supplier and the customer. The work of Walter et al. (2003) and Walter and Ritter (2003) have been extensively cited in the business relationship literature (e.g., Tat et al. 2009; Lacey 2007; Ulaga and Eggert 2006; Ulaga 2003). This extensive attention is due to their attempt to define specific dimensions of the customer commitment from both customer and firm perspectives. They argue that exchange partners are committed, when they have positive attitude towards future relationships, invest on the relationship, and aim to continue the relationship over time (Walter et al. 2003). To this end, Walter and Ritter (2003) define commitment as an enduring desire of a customer to maintain and develop a long term relationship with the supplier, which has been adopted by other researchers such as Tat et al. (2009) and Lacey (2007).

Within the B2B relationship research domain, researchers have linked customer commitment to purchase intention, price premium, and customer share (Keh and Xie 2009; Lacey 2007). Customer commitment is also shown to be a strong indicator of the high quality relationship (Walter et al. 2003) and the predictor of customer loyalty (Kenneth and Miller 2007). Given that customer commitment is the most important determinant of continuous relationship in the B2B context (Keh and Xie 2009; Lacey 2007; Walter and Ritter 2003; Morgan and Hunt 1994), it can be considered as the most significant business customers' response to the brand. In the branding literature, the customers' response to the brand is known as customer based brand equity (Rust et al. 2004; Ambler et al. 2002), and is an under researched area of investigation in B2B relationships, with little attention to-date. Customer response to the brand is argued to be the most important determinant of firm performance and firm based brand equity (Christodoulides and de Chernatony 2010).

Firm based brand equity in the context of B2B. Firm based brand equity is related to the financial value of the brand for the firm (Kim et al. 2003). Within the B2B brand equity research domain, many researchers focus on the monetary aspect of brand equity (Madden et al. 2006; Rust et al. 2004; Bendexen et al. 2004). In this view, while some consider the brand value as a separate asset that increases the financial value of the firm, others look at brand value as the incremental discounted future cash flows resulted from a product having its brand name (Ambler et al. 2002; Simon and Sullivan 1993). Consistent with Ambler et al. (2002), Bendixen et al. (2004) argue that in the context of B2B brand equity customer is willing to pay a price premium for their favourite brand. Simon and Sullivan (1993) adopt a different view and argue that price is only a part of firm based brand equity and profitability and reducing marketing costs are two important aspects of firm based brand equity which are not considered in price premium.

In the view of Simon and Sullivan (1993), profitability and market share are important indicators of firm based brand equity, because they show the stability of cash flow into the firm. It seems that Zaichkowsky et al. (2010) support the view of Simon and Sullivan (1993), arguing that industrial purchasers prefer to conduct business with companies that are relatively financially stable, successful, and reliable. It appears that in the view of Zaichkowsky et al. (2010), outstanding financial performance signals the quality and reliability of the product or service, as customers in the B2B context have enough information about the supplier and do not pay for low quality and unreliable products and services.

The review of branding literature reveals that there is agreement among scholars that the monetary value of a brand is the result of the customer responses to the brand. Customer responses to the brand are considered as the driving force of increased market share and profitability of the brand (Christodoulides and de Chernatony 2010; Ambler et al. 2002). However, researchers in the branding domain have identified several antecedents of firm based brand equity. In the branding literature, corporate social responsibility (Wang 2010), quality of the service (Baldauf et al. 2003; Sharp 1996), service attributes and employees (van Riel et al. 2005), and customer responses to the brand (Christodoulides and de Chernatony 2010; Rust et al. 2004; Ambler et al. 2002) are considered as critical antecedents of firm based brand equity.

Given that profitability and market share are two important indicators of firm based brand equity (Kim et al. 2003; Simon and Sullivan 1993), identifying appropriate measures that address these two indicators seems necessary. One of the most highly cited measures of profitability and market effectiveness is the measure proposed by Vorhies and Morgan (2005). Vorhies and Morgan (2005) measure market effectiveness, using a measure that tapped the degree to which the firms' market-based goals had been achieved. The items included in the measure of profitability and market effectiveness employed by Vorhies and Morgan (2005) is commonly used by other researchers such as Homburg et al. (2003) and Morgan et al. (2002).

To sum up, reviewing the branding literature shows that brand equity is increasingly gaining support in the B2B context (Leek and Christodoulides 2011; Baumgarth and Schmidt 2010). It seems branding in services (Brodie et al. 2006; Dall'Olmo Riley and de Chernatony 2000; Zeithaml et al. 1985), especially in professional service firms (Amonini et al. 2010) is becoming more critical, due to special characteristics of services such as intangibility (Zeithaml et a. 1985). If the service brand plays an important role in creating a constant cash flow to the firm, it is necessary to understand the service branding models and how they contribute to the development

of the service brand. Thus, next section (3.7.1) reviews the literature related to service branding.

3.5.1. ***Service branding***

It is widely acknowledged that the brand is just as valuable if not more for service firms compared to manufacturers due to the intangibility and heterogeneity of the service (e.g., Punjaisri et al. 2014; de Chernatony and Segal-Horn 2001; Berry 2000). To emphasise the importance of the brand in service firms, Berry (2000) suggests brand as the cornerstone of services marketing, and Zeithaml (1981) considers the brand as the service firm promise guaranteeing customer satisfaction in the future. Further, Dall'Olmo Riley and de Chernatony (2000) argue that a brand is the relationship builder between the service provider and the customer. This is especially true when evaluating the quality of the service and judgment about service are difficult (e.g., as is the case in professional services). In the services marketing literature, brand is introduced as one of the most important proxies for customers to judge the service they purchase. Researchers investigating service branding argue that due to the special characteristics of services (e.g., intangibility and variability) service branding is different from product branding. On this premise, a number of service branding models have been introduced in the service branding literature from the firm perspective (see also O'Cass and Sok 2012; Brodie et al. 2006; de Chernatony et al. 2003; de Chernatony et al. 2003; de Chernatony and Segal-Horn 2001).

The first service branding model analysed here is de Chernatony and Segal-Horn's (2001) model. de Chernatony and Segal-Horn (2001) argue that the success of a service brand depends on the consumers and employees. Further, they argue that the success of a service brand depends on the culture of the service firm and how employees are trained to have brand supportive attitude. In the view of de Chernatony and Segal-Horn (2001), culture and employees brand supportive attitude and behaviour are difficult to build, but is more difficult to copy by competitors. Thus, they are a source of advantage for the service firm. The service branding model developed by de Chernatony and Segal-Horn (2001) mainly focuses on the development of the brand inside the service firm to overcome the problem of consistency across all points of interaction. They contend that when a brand culture is dominant, employees align their behaviours with the brand's values. To align the brand values and promises employees should be trained to deliver consistent brand promises at any touch points and make a holistic brand image.

de Chernatony et al. (2003) extend the service branding model developed by de Chernatony and Segal-Horn (2001) and include cross-functional teams, strong customer orientation, and brand supporting culture to maximise the success of service brands. They believe brands do not die because of customers, but employees are those who destroy a service brand. Therefore, they highlight the importance of human resource practices and suggest that employing the right people and training them to be customer focused and brand champions are the key for the success of service brands. Further, they suggest that service firms need to be externally oriented. To reach to this aim the service firm should be customer oriented to meet customer needs, but customers are not always right. On this point, it has been argued that sometimes customers have unrealistic expectation that cannot be met (de Chernatony et al. 2003). In such situations, employees should be trained well to be customer oriented but be able to deal with the situation in the case of disagreement with customers without damaging the brand image. The focus of the service branding model presented by de Chernatony et al. (2003) is on enhancing internal brand building behaviour and internal brand building culture. In this sense de Chernatony et al. (2003) suggest it is necessary to have a brand champion in the firm for building the brand and disseminating standards for the brand.

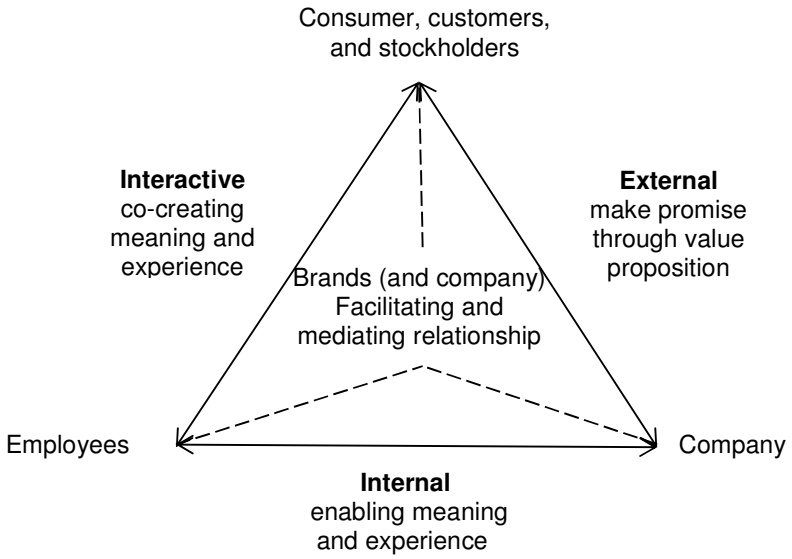
While de Chernatony et al. (2003) and de Chernatony and Segal-Horn (2001) focus on internal relationships and developing brand supportive attitudes among employees in the service firm, Brodie et al. (2006) raise the importance of connecting with the external environment to develop the service brand. Brodie et al. (2006) introduce the "Service Brand-Relationship-Value Triangle" and argue the service brand is created as a result of relationships between actors inside and outside the service firm. As shown in Figure 1, service branding is the result of interactions between three marketing processes known as external marketing, internal marketing, and interactive marketing.

Brodie et al. (2006) argue that a service firm makes its promises to its customers through external marketing (the relationship between the service firm and the customer). Through internal marketing (organisation and people) the service firm facilitates the actualisation of their promises. Finally, through interactive marketing (the relationship between an organisation and the end customer) the service firm puts effort into keeping and supporting its promises through interaction with customers. Through the interactions between the service provider and the customer, the service is co-created and the promise to customers is actualised. It appears that Brodie et al. (2006) believe the best place for actualising the brand promises is where the customer and the service provider work together to provide the service. Further, the service branding model

proposed by Brodie et al. (2006) shows that internal relationships form the processes that enable service firms to enhance their promises to customers for delivering based on the values rested in the brand.

Figure 1

The service brand- relationship-value triangle (Brodie et al. 2006)



While Brodie et al. (2006), de Chernatony et al. (2003), de Chernatony et al. (2003) and de Chernatony and Segal-Horn (2001) conceptually or based on interviews with managers develop service branding models, Sok and O'Cass empirically investigate the value creation of the service brand. Sok and O'Cass (2011) integrate branding theory and value creation theory and empirically show that the service brand value offering of the service firm increases the value a customer perceives. The findings of Sok and O'Cass (2011) show a strong and significant relationship between customers' perceived value and customer centric performance (retention, satisfaction, and acquisition). However, Sok and O'Cass (2011) believe customer perceived value is improved if the service firm is capable of communicating the value they offer to their customers through their marketing capability. The finding of Sok and O'Cass (2011) is consistent with the service branding model proposed by Brodie et al. (2006) in the sense that brand promises (e.g., value offerings in the work of Sok and O'Cass (2011)) should be communicated externally to ensure that customers become aware of brand promises.

Comparing the service branding models discussed above provides evidence of commonality among these three service branding models. The commonality is about the important role of employees in establishing a successful service brand and

developing strong brand equity through creating and enhancing relationships with customers. Employees play a crucial role in the development of service brand equity, because they are representative of the service firm and the bridge between customer and the service firm (Chernatony and Segal-Horn 2001). Thus, their behaviours affect customer perception of the quality of the service and their decision to stay with the service firm or leave it (Lovelock and Wirtz 2011: Brodie et al. 2006). If customers stay with the service firm, customer based brand equity is increased. When customers pay for the service, the service firm based brand equity is improved. Given the importance of employee behaviour to improve service brand equity, there should be some organisational mechanism to guide their behaviours and align their behaviour with brand values and promises.

The service branding models discussed above focus on specific organisational elements to develop the employee ability to be a brand ambassador. de Chernatony et al. (2003) raise the important role of human resource practices such as employing and training. de Chernatony and Segal-Horn (2001) highlight the important role of brand supportive culture, and Brodie et al. (2006) focus on the process that facilitates co-creation between employees and customers. The other commonality among these service branding models is the important role of top management and their leadership style to distinguish brand values (Chernatony et al. 2003; Chernatony and Segal-Horn 2001). The recognition of the important role of leadership in the success of service brands converges with the solution literature identifying the importance of encouraging and motivational leadership style to provide a superior solution (e.g., Storbacka 2011; Fenton and Pettigrew 2006; Galbraith 2002). It appears both the service branding literature (Brodie et al. 2006; de Chernatony and Segal-Horn 2001) and the solution literature place a prominent emphasis on leadership as driving critical outcomes (Storbacka 2011; Fenton and Pettigrew 2006; Galbraith 2002) such as branding and superior solutions.

3.5.2. The role of leadership and employees in developing service brand

The service branding models discussed in Section 3.7.1 suggests the importance of employees and organisational mechanisms that guide and enhance employee behaviours towards establishing a successful service brand. Identifying organisational mechanisms, Wallace and de Chernatony (2009) specifically focus on the role of leaders to guide employees to behave in accordance to the brand's values and deliver the promises the service firms make to its customers. The significance of the role of leaders to affect or change employee behaviour is evident within the research that shows

leaders act as the persistent driving force to base the foundation of employee behaviour and attitude (e.g., Wieseke et al. 2009; Wimbush and Shepard 1994).

To highlight the important role of leaders to guide employee behaviour, Paarlberg and Lavigna (2010) contend employees will do what their supervisors want, rather than what is written in the policy manual. Within the leadership literature, some argue that the base of employee behaviour is founded, when leaders develop a reciprocal expectation by providing followers individualised treatment, respect and empathy, as well as the tools and skills to grow (Paarlberg and Lavigna 2010; Chernatony and Segal-Horn 2003). These types of leaders are referred to as transformational leaders (Bass 1991). Given the close connection between leaders and employees to achieve organisational goals (e.g., branding goal), the role of transformational leadership and employee behaviours focusing on branding issues appears critical.

3.5.2.1. Transformational leadership

The concept of transformational leadership (TFL) is one of the most widely researched paradigms in the leadership field (Uen et al. 2012; Groves and LaRocca 2011; Paarlberg et al. 2010; Clark et al. 2009; Wieseke et al. 2009; Morhart et al. 2009; Vallaster and de Chernatony 2005). TFL is conceptualised as "a process of inspiring change and empowering followers to achieve greater heights, to improve themselves, and to improve organisational processes" (Koehler and Pankowski 1997, p. 16). Bass and Avolio (1994) argue that TFL is consisted of four unique and interrelated behavioural components: inspirational motivation (articulating an appealing and/or evocative vision), intellectual stimulation (promoting creativity and innovation), idealised influence (charismatic role modelling), and individualised consideration (coaching and mentoring). The extant research has shown that TFL is the persistent driving force to base the foundation of employee behaviour (Schepers et al. 2012; Uen et al. 2012; Wieseke et al. 2009; Morhart et al. 2009; Vallaster and de Chernatony 2005).

Analysis of research on TFL shows that transformational leaders encourage employees to work beyond the expectations (Martin and Bush 2006; MacKenzie et al. 2001), work hard to achieve their goals (Griffin et al. 2010), and get the confidence to operate the new systems (Cho et al. 2011). It is also advocated that TFL is an important driver in the creation of customer value (O'Cass and Sok 2012) and service firms' cultural values (Paarlberg and Lavigna 2010; Morhart et al. 2009; Chernatony and Segal-Horn 2003). An analysis of the leadership literature reveals that while the findings on relationship between TFL and employee behaviour/performance are consistent, in

some research there appears to be a level of inconsistency in the findings. The inconsistencies in findings have led researchers to argue that the relationship between TFL and some types of employee performance seem to be context dependent. For instance, Wallace and de Chernatony (2009) examine the relationship between leadership style and employee performance in the grocery and banking sector. The findings of Wallace and de Chernatony (2009) are interesting, as they show the relationship between consideration leadership style (as a part of TFL) and employee performance is context dependent. Their findings show that considerate leadership style does not affect job dissatisfaction in the grocery sector, but increases job dissatisfaction in the banking sector. The unexpected result might be due to the fact that in the banking sector employees appreciate a manager who achieves business goals and objectives rather than a leader who is supportive and friendly.

Further, the findings of Wallace and de Chernatony (2009) are inconsistent with the work of Liao and Cheung (2007) who show TFL increases job satisfaction in hairstyle sector. The reason for the inconsistency might be due to focusing on different service sectors or using different measures of TFL. Liao and Cheung (2007) use Bass and Avolio's (2000) Multifactor Leadership Questionnaire (MLQ)[3], while Wallace and de Chernatony (2009) use a very short measure and only focus on what is labelled as the *considerate* aspect of TFL. Thus, it is difficult to determine whether the inconsistency between the findings of Liao and Cheung (2007) and Wallace and de Chernatony (2009) is due to using different measures or using different service contexts.

However, while there are inconsistencies within the TFL research domain, there are consistencies among findings when the relationships between TFL and specific types of employee behaviours are examined. For instance, in the banking sector, Wallace et al. (2013) show that considerate leadership behaviour affects employee affective commitment and normative commitment, but reduces continuous commitment. They conclude considerate leadership does not encourage employees to stay for a long time with the service firm. To some extent, these findings are consistent with the findings of Gumusluoglu et al. (2013) among R&D personnel, which show a positive and direct effect between TFL and employee commitment to the supervisor but conditional commitment to the organisation. Wallace et al. (2013) consistent with Gumusluoglu et al. (2013) examine the level of commitment to the organisation and do not find a positive result relationship considerate leadership style and propensity to stay with the

[3] The Multifactor Leadership Questionnaire (MLQ—also known as MLQ 5X short or the standard MLQ) developed by Bass and Avolio (1997) measures a broad range of leadership types from passive leaders, to leaders who give contingent rewards to followers, to leaders who transform their followers into becoming leaders themselves. The MLQ identifies the characteristics of a transformational leader and helps individuals discover how they measure up in their own eyes and in the eyes of those with whom they work.

organisation for a long time. The findings of Wallace et al. (2013) and Gumusluoglu et al. (2013) are consistent in a sense that TFL creates attachment between the leader and the employee, but not necessarily between the employee and the service firm.

While research on the relationship between TFL and employees mainly focus on employee behaviour (e.g., commitment) and employees performance (e.g., service performance), research in the leadership context has changed its focus to some extent. In particular, many researchers seek to understand the relationship between transformational leaders who focus on specific values and whether employees demonstrate those values in their daily business practices. For example, researchers examine the role of leaders who specifically advocate branding values to improve employee behaviour that support branding values (e.g., Morhart et al. 2009). Some example of these kinds of research can be seen in the work of Clark et al. (2009) and Uen et al. (2010).

Clark et al. (2009) examine the relationship between managers who are committed to deliver a high quality service and employee commitment to deliver quality service. Clark et al. (2009) use a nine item measurement to measure the extent to which managers are committed to delivering quality service to customers. Their findings show managers who have a view of providing quality services and have the empowering leadership style can influence employee behaviour to provide high quality services to customers. However, this relationship is significant when customer orientation is the dominant culture in the service firm. Consistent with Clark et al. (2009) who focus on the effect of cultural values on the relationship between leadership style and employee behaviour, Uen et al. (2012) measure the effect of TFL on employee brand building behaviour when the dominant culture is brand oriented. These studies are premised on the view that the service firm's culture plays an important role to intrigue the relationship between TFL style and employee behaviour to support those cultural values. However, Morhart et al. (2009) have a different approach towards the examination of the effect of leadership style on employee behaviour.

Morhart et al. (2009) believe leaders should have a strong belief towards important values in the service firm. In particular, Morhart et al. (2009) believe if B2B service firms expect to have a strong brand and employees who support brand values, the leadership style should be brand specific transformational leadership. Morhart et al. (2009) are among the first researchers to use the MLQ and integrate it with brand values and specifically focus on the impact of brand specific transformational leadership (BSTFL) on employee in-role and extra role brand building behaviour. They develop specific measures for BSTFL adapting 20 items from the MLQ (Avolio and Bass 2004). They collect data from the B2B division of a large telecommunications company using

online survey to understand how BSTFL affects employee brand building behaviour in service encounter. Morhart et al. (2009) support the view that if service firms wish to vitalise and actualise their brand promises they need to have employees who support the brand and brand values through their behaviours. Their suggestion for directing employees brand building behaviour is having transformational leaders who supporting brand values are dominant in their daily work business practices. Their findings support the view that BSTFL increases not only employee prescribed behaviour as embedded in service firm manuals and instructions, but enhance employee behaviour to work as brand ambassadors. Morhart et al. (2009) address the issue raised by de Chernatony et al. (2003) on training brand champions, and show that brand champions exist in service firms, when the leader supports brand values in their daily business activities and work.

Given the importance of the issue raised by de Chernatony et al. (2003) on training brand champions and addressed by Morhart et al. (2009), some researchers have given attention to identify other types of employee brand building behaviour specifically in the occurrence of service failure, where it is necessary to save the brand image in the customer's mind. Punjaisri et al. (2013) examine the relationship between BSTFL and another type of employee brand building behaviour known as service recovery performance. The findings of Punjaisri et al. (2013) in relation to the effect of BSTFL on service recovery performance are consistent with Morhart et al.'s (2009) findings on the effect of BSTFL on employee in-role and extra role brand building behaviour. The findings of Punjaisri et al. (2013) increase the credibility and importance of brand specific leadership to strengthen employee behaviour towards supporting brand values by showing the direct effect of BSTFL on employee brand building behaviour. They believe as BSTFL articulates brand values and brand-building behaviours as well as being a role model in living a brand, they can directly influence employee brand-building behaviour during the service recovery. Their findings increase the validity of BSTFL measure developed by Morhart et al. (2009), because they present consistent results using various samples in different contexts.

3.5.2.2. Employees behaviour

An examination of the service branding literature shows that service firms actualise their promises to their customers, when they deliver a service which is consistent with the promises they make to their customers through marketing activities (Sirianni et al. 2013; Brodie et al. 2006). The actualisation of service brand promises occurs through employee behaviour during their interaction with customers (King and Grace 2012). Research focusing on organisational behaviour has been broadly identified two

distinctive roles for employees known as in-role and extra-role behaviour (Mackenzie et al. 2011; Morhart et al. 2009; Vey and Campbell 2004).

Employee in-role behaviour is defined as standards prescribed by the organisation to perform a job, which might be either written in behavioural codices, manuals, display rules, and so forth, or unwritten (Morhart et al. 2009; Turnley et al. 2003; Van Dyne and LePine1998). Van Dyne and LePine (1998) argue that in-role behaviour affects employee performance and leads reprimand or financial consequences for the employee. Employee extra role behaviour, on the other hand, is defined by Organ (1988) as "individual behaviour that in the aggregate aids organisational effectiveness, but that is neither a requirement of the individual's job nor directly rewarded by the formal system" (p. 101). Van Dyne and LePine (1998) contend that supervisors evaluate extra-role behaviour as being more valuable compared to in-role behaviours, because constant changes in external environments restrict anticipation or specification of all desired employee behaviours.

Extra role behaviour has been broadly conceptualised into two different types of behaviours. The first type is behaviours that enhance the interpersonal and cooperative relationship in the organisation called affiliation oriented (Mackenzie et al. 2011). The second is a kind of encouraging behaviour where employees tend to make suggestions to improve something, or make things happen in the organisation known as voice or challenge oriented behaviours (Mackenzie et al. 2011; Choi 2007; Dewett and DeNisi 2007; Van Dyne and LePine1998; Van Dyne et al. 1995). Mackenzie et al. (2011) argue challenge-oriented behaviours may disrupt interpersonal interactions and decrease unit or organisational performance, because they affect status quo.

Given the negative effect of challenge-oriented behaviours, Mackenzie et al. (2011) suggest both challenge oriented behaviour and affiliation-oriented behaviours are important to influence organisational outcomes. Mackenzie et al. (2011) argue that in an organisation affiliation-oriented behaviour may moderate some of the potentially dysfunctional effects of challenge-oriented behaviours. Mackenzie et al. (2011) find challenge-oriented behaviours are more positively related to workgroup task performance when affiliation-orientation is high. Further, previous research on the relationship between different types of extra-role and in-role behaviours shows extra-role and in-role behaviour are highly correlated (Van Dyne and LePine 1998). Further, on this point, Piercy et al. (2006) propose that an interaction of extra-role and in-role behaviours contribute to the higher employee performance, meaning that extra-role and in-role behaviours complement each other.

Given the importance of brand and brand equity and the crucial role employees play to increase brand equity, some researchers have focused their efforts on

understanding the drivers and consequences of employee in-role and extra-role brand building behaviour (King and Grace 2012; Baumgarth and Schmidt 2010; Morhart et al. 2009). Morhart et al. (2009) raise the importance of TFL to motivate employees to exhibit brand building behaviour through in-role and extra-role brand related behaviours. In their view, this is the leaders' duty to motivate employees to support the brand values through their daily practices. Morhart et al. (2009) support the view that the extra-role brand building behaviour is a form of challenge oriented behaviour, where employees come up with new ideas and suggestions to develop the brand. The measure of extra role brand building behaviour in Morhart et al.'s work focuses on the extent employees share their suggestions, opinions, and ideas with their supervisor to elevate the brand value. The items Morhart et al. (2009) used to measure extra role brand building behaviour are consistent with the conceptualisation of challenge-oriented behaviours raised by Mackenzie et al. (2011). In Mackenzie et al.'s (2011) view challenge oriented behaviours aim to develop and improve the workgroup performance. However, Van Dyne and LePine (1998) take the view that dealing environmental changes is ongoing and argue that challenge oriented behaviours are more suitable to cope with constant changes in external environments. Given the constant changes and increasing complexity of the business environment challenge-oriented behaviours seem critical to develop in the service firm.

To identify antecedents of employee extra-role behaviour, King and Grace (2012) consider certain organisational factors and personal factors (focused relationship orientation, organisational socialisation, employee receptiveness, and brand commitment) as the predictor of employee extra-role brand building behaviour. Both Morhart et al. (2009) and King and Grace (2012) argue that employees should be trained to demonstrate extra-role brand building behaviour. However, while Morhart et al. (2009) believe leaders train employees, King and Grace (2012) believe organisational socialisation trains employees to behave as a brand champion and demonstrate extra-role brand building behaviour. The other point of departure in the work of Morhart et al. (2009) and King and Grace (2012) is what constitutes extra-role brand building behaviour. While Morhart et al. (2009) only focus on challenge oriented behaviour aspect of employee extra role brand building behaviour, King and Grace (2012) measure extra role brand building behaviour as the combination of challenge oriented behaviour, affiliation oriented behaviour and participation behaviour.

Among the studies that explore the antecedents and consequences of employee brand building behaviour, the work of Baumgarth and Schmidt (2010) is interesting in a sense that they introduce employee in-role and extra-role behaviours as the components of internal brand equity. Baumgarth and Schmidt (2010) identify

antecedents and consequences of internal brand equity in the B2B context. Particularly, in their view brand orientation, internal commitment, brand knowledge, and brand involvement are the antecedents of internal brand equity, and they focus on the customer based brand equity as the outcome of internal brand equity. Similar to Morhart et al. (2009), Baumgarth and Schmidt (2010) draw attention to the importance of establishing a brand-oriented mindset. While Morhart et al. (2009) focus on the importance of leadership to establish that mindset, Baumgarth and Schmidt (2010) focus on brand oriented culture. Further, and Baker et al. (2014) believe brand knowledge dissemination is an important determinant of employee behaviour towards the brand. Baumgarth and Schmidt (2010) work is different from the work of Morhart et al. (2009) and King and Grace (2012), because they explicitly focus on how in-role and extra-role behaviours are related to a very important outcome of organisation, known as the customer based brand equity. However, Baumgarth and Schmidt (2010) in a similar fashion to King and Grace (2012) view extra-role brand building behaviour as combination of challenge-oriented behaviour and supportive behaviour.

Using multi-source data from the employees, managers, and customers of a business-to-business firm in the hospitality industry, Baker et al. (2014) support the contention that if service providers desire brand-consistent performance that is observable to managers and customers, they have to make an extra effort to communicate brand-specific information to employees. Similar to Baumgarth and Schmidt (2010) and King and Grace (2012) extra-role brand building behaviour in view of Baker et al. (2014) is a combination of challenge oriented behaviour and supportive behaviour.

The literature review in this section highlights the importance of employees and their behaviour in improving organisational and individual performance. Specifically, the review of literature on the employee brand building behaviour shows the important role of creating a mindset that assists employees to internalise brand values and support brand values through leadership, training, culture, and brand information dissemination. Further, the literature review on employee brand building behaviour shows that the combination of in-role and extra-role behaviour is necessary to achieve organisational goals (Mackenzie et al. 2011; Piercy et al. 2006). Among extra role behaviour, challenge oriented behaviours seems more appropriate than other types of extra role behaviour (e.g., affiliation) as they are sources of changes in the organisation. A close examination of the literature on employee brand building behaviour shows that employee brand building behaviour create the value for the service firm (Biedenbach et al. 2011; Baumgarth and Schmidt 2010) through developing brand equity and relationships with customers (Sirianni et al. 2013; Brexendorf and Kernstoc 2007;

Brodie et al. 2006). However, no research to date has investigated how employees brand oriented behaviour is employed to develop organisational capabilities that enable a firm to actualise their promises. An analysis of the employee brand building behaviour literature shows that even though employee brand building behaviour creates value for the service firm, the process of how the value is created is not well understood as hardly research has been examined it.

3.6. Conclusion

One of the key reasons driving the interest in PSFs is the unique output they provide – knowledge intensive business services in the form of service solutions, as such: studying their organisational characteristics becomes more important and imperative. The literature review presented here in Chapter Three sought to integrate the service solution literature and service branding literature to form a base for the theoretical foundation that fit the specific characteristics of solution providers. In the first part of the literature review in this chapter, the solution literature was reviewed and the definitions of solution were discussed. Further, attention was given to the resources that go toward providing a solution. The literature review shows that relational resources and knowledge resources are the dominant or priority resources for firms in the solution businesses. However; the literature does not address at which level cooperation with customer does not negatively affect the superiorty of service solution. Further; the solution literature has never explored how much knowledge are required to develop superior service solution to customers and how the application of knowledge can be facilitated across the solution provider. The appropriate application of relational and knowledge resources are necessary to provide superior service solutions for customers and enhance their market position.

To maintain market position, service branding in the B2B context seems to act as a suitable platform. It is evident from the literature review that transformational leaders who support brand values are more successful to improve employee behaviours to support the brand. The literature review identified that the combination of extra role and in-role brand building behaviour are more useful to improve employee performance. It was identified through literature review that to cope with high velocity markets, challenge oriented behaviours are more appropriate, because employees are often the one who come up with suggestions that may increase the firms' ability to cope with changes. However, the solution literature never identified how leaders and employees who are brand oriented contribute in providing superior service solution and maintain market position.

While the literature review here attempted to acknowledge the contributions others have made to the knowledge pool relevant to the topic, it tries to form the foundation for the development of the theoretical framework and, as such, the development of a theory of PSFs solution superiority in Chapter Four. To conclude this chapter and set the scene for the Chapter Four, attention is drawn to the claim by Greenwood et al. (2006, p. 5) that "*PSFs are different from many organizations from which much current organizational theory was (and still is) derived"*. The theory development in Chapter Four focuses on the interplay between CCSP, service solutions and the foundational processes embedded in people, knowledge and brand equity domain. This domain, however, seems an appealing starting point to develop theory focusing on PSFs and the delivery of service solutions.

Chapter Four

Theory Development and Hypotheses

> **"***Theory is a statement of concepts and their interrelationships that shows how and/or why a phenomenon occurs".*
>
> *Corley and Gioia 2011, p. 12*

4.1. Introduction

The rapidly growing professional service sector driven by professional service firms (PSFs) is increasingly seen as playing a critical role in knowledge processing and knowledge creation (Marzocchi et al. 2013; Chae 2012; Javalgi et al. 2012; Tether and Tajar 2008; Den Hertog 2000). In the services marketing literature, PSFs are known as "second knowledge infrastructure" (Den Hertog 2000) and knowledge brokers (Marzocchi et al. 2013), who transform knowledge through cooperation and interdependency with business firms (Marzocchi et al. 2013). The increasing importance of PSFs has occurred, because many firms in diverse sectors increasingly rely on the service solutions they provide to customers (Global Services Forum 2013; Jaakkola and Hakanen 2013; Kapletia and Probert 2010). PSFs are distinguished by a specific set of characteristics, including the application of extensive and complex knowledge, extensive level of customer cooperation in the service provision (CCSP) process, highly educated workforce, and highly customised offerings, and high credence quality of offerings (Jaakkola and Halinen 2006; Løwendahl 2005; Maister 1993). These characteristics distinguish PSFs from other types of firms (e.g., manufacturers), and therefore they need a distinctive management theory that helps them overcome the challenges they face (Von Nordenflycht 2010; Greenwood et al. 2005; Maister 1993). It has been acknowledged by many that developing a new management theory or revising existing management theories that suits the specific characteristics of PSFs is necessary (Von Nordenflycht 2010; Fenton and Pettigrew 2006; Greenwood et al. 2005; Maister 1993).

The content analysis of the literature undertaken in Chapter Two and the literature review undertaken in Chapter Three offers a starting point for the development of theory, focusing on PSFs and underpins the theoretical research model advanced in this Chapter. This research is built on the views of Corley and Gioia (2011) and attempts to

explain why and how the relationships between the constructs of interest occur and help develop the foundation of the theory of PSFs outlined in this chapter. Building on Chapters Two and Three, the theoretical model and embedded hypotheses are developed. They specifically focus on the role of knowledge-management processes and people-management processes with the specific focus on branding contribute in providing superior service solutions and building strong brand equity. This chapter includes three main sections to develop the theoretical model and embedded hypotheses. The theory and hypotheses underpin the ability of the study to address the research objectives outlined in Chapter One. Section 4.2 details the research model development, Section 4.3 summarises the overall model, and Section 4.4 includes concluding remarks related to the chapter's theory development.

4.2. Model development

The theoretical model is advanced to address the primary research questions and sub research questions introduced in Chapter One focusing on:

RQ1- To what extent do people management processes impact service solution superiority in PSFs?

RQ1a. *To what extent does brand specific transformational leadership influence employee brand building behaviour in PSFs?*

RQ1b. *To what extent does employee brand building behaviour influence CCSP in the PSFs?*

RQ1c. *To what extent does CCSP improve service solution superiority in the PSFs?*

RQ2- To what extent do knowledge management processes impact service solution superiority in PSFs*?*

RQ2a. *To what extent do the levels of broad and deep technical knowledge influence service solution superiority in PSFs?*

RQ2b. *To what extent does the broad and deep customer knowledge influence CCSP in PSFs?*

RQ2c. *To what extent does knowledge assimilation affect the strength of the relationship between technical knowledge and service solution superiority in PSFs?*

RQ2d. *To what extent does knowledge assimilation affect the strength of the relationship between customer knowledge and CCSP in PSFs?*

RQ3- To what extent does service solution superiority impact brand equity in PSFs?

RQ3a. *To what extent does service solution superiority contribute to the development of customer based brand equity in PSFs?*

RQ3b. *To what extent does service solution superiority contribute to the development of firm based brand equity in PSFs?*

The discussion and development of the theoretical model are presented in four sub-sections in this chapter. First, Section 4.2.1 focuses on defining service solution in the context of PSFs and developing the broader, more general research model representing the primary building blocks of the model. Second, Section 4.2.2 focuses on the role of people-management processes in the service solution provision process (RQ1), and presents hypothesis 1 to address RQ1a, hypothesis 2 to address RQ1b, and hypothesis 3 to address RQ1c. Third, Section 4.2.3 focuses on the role of knowledge-management processes (RQ2) in the service solution provision process and presents hypothesis 4 to answer RQ2a, hypothesis 5 to answer RQ2a and hypothesis 6 to answer RQ2c, and RQ2d. Finally, Section 4.2.4 brings in the role of brand equity as the output of service solutions (RQ3) and presents hypothesis 7a to answer RQ3a, and hypothesis 7b, and hypothesis 7c to answer RQ3b. Section 4.3 summarises the overall research model and the chapter closes with concluding comments in Section 4.4.

4.2.1. Model development Stage, 1: Definition of service solutions

The discussion of the literature in Chapter Three, Section 3.3, indicates that solutions have been mainly considered as the combination of products and/or services (in a few cases researchers use a combination of products and/or services/knowledge/ information). The examination of solution, therefore embedded within the context of manufacturing firms transitioning from the product domain to service domain (Davies et al. 2007; Brady et al. 2005) or manufacturing firms adding services to the range of their offerings (e.g., product plus service). Further, it was discussed that some view the solution provision as a set of relational processes (Töllner et al. 2011; Tuli et al. 2007) in which product, service, and/or knowledge components are integrated into offerings (Hakanen and Jaakkola 2012). Overall, the discussion in Chapter Three reveals that defining solution as either a set of relationships (e.g., Tuli et al. 2007) or the process of integrating resources (e.g., Hakanen and Jaakkola 2012) does not fully articulate what a solution is, nor identify the nature of a solution. Further, the conclusion drawn from the discussion in Section 3.3 indicates that there is no universally agreed definition for solutions. In particular, the current definitions found in the literature are couched in the

specific service setting that studies are conducted in, implying that solution is context dependent (see, Hakanen and Jaakkola 2012; Davies et al. 2007).

Given that a solution is context dependent, it should be defined in the PSF context embedding and/or accounting for the special characteristics of PSFs. Given that PSFs offer intangible services (Walsh and Gordon 2010; Jaakkola and Halinen 2006), which are highly customised to the business customers' needs (Hogan et al. 2011; Greenwood et al. 2005; Maister 1993), this study defines service solutions as customised services that meet customer's non-standardised needs. This definition is built on the work of Maister (1993), Evanschitzky et al. (2011), Nordin and Kowalkowski (2010), Miller et al. (2002), and Sawhney (2006), who focus on the level of customisation in solution offerings.

As identified in Chapter One, a critical challenge for PSFs is delivering superior service solutions that exactly addresses their business customer's problem. However, a service solution has a multifaceted nature and is embedded in a range of specific characteristics such as customisation (Hogan et al. 2011; Greenwood et al. 2005; Maister 1993) and innovativeness that help meet a specific business customer's needs (Hogan et al. 2011). Therefore, service solution superiority in this research is defined as the level of quality and innovativeness of customised service solution provided to customers to meet customer's non-standardised needs. Service solutions that meet business customers' needs are expected to contribute to maintain the PSFs' competitive position in the market and sustain superior performance, thus enhancing brand equity. The underlying reason for this argument is that business customers wish to reduce the level of risk associated with purchasing a solution (Amonini et al. 2010). Hence, when the customer receives a superior service solution that solves their business problem, they prefer to stay with the PSFs' and establish a long-term relationship with the PSF (Amonini et al. 2010). In this sense, the customers desire to stay with the PSF improves the brand equity of the PSF in the form of customer based brand equity. Further, customers are willing to pay a price premium or extra for the service solutions they buy (see van Riel et al. 2005 and Duckler 2001), thus, improving the brand equity in the form of firm based brand equity (e.g., profitability, market effectiveness).

Further, to provide service solutions, as discussed in Chapter One, people play an important role in meeting business customers' needs and in the superiority of the service solution provided. People included in the service solution provision process are customers, employees, and leaders. In picking up on the people-management processes, the content analysis presented in Chapter Two, Section 2.2, highlights the importance of CCSP process and Chapter Three focuses on the role of the customer, leaders, and employees in the service solution provision process. Further, the notion of

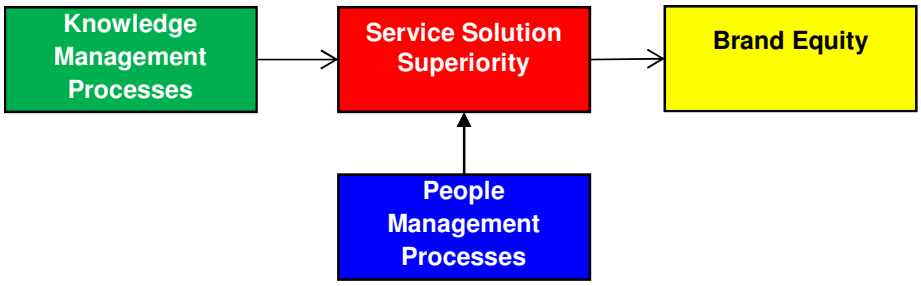
PSFs as knowledge intensive firms was introduced, emphasising that their main input and output is knowledge (Strambach 2008; Greenwood et al. 2005). PSFs are well known for the unusual output that is intangible, high credence quality, and customised services to a specific customer (Jaakkola and Hakanen 2006; Greenwood et al. 2005). In this sense, the output of PSF, which is called service solution, is the result of the application of complex and intensive expertise knowledge (Greenwood et al. 2005). Based on the discussions in the previous chapters, Figure 4.1 identifies people-management processes and knowledge-management processes as critical inputs into the service solution provision and brand equity as the focal outcome of service solutions.

As shown in Figure 4.1, the blue rectangle represents people-management processes and the green rectangle represents knowledge-management processes, the red rectangle represents the solution in terms of its superiority, and the yellow rectangle represents brand equity, as a key output of transforming people-management processes and knowledge-management processes into superior service solution. Through the model development process in this chapter and thereafter in the study, these terminologies and colour coding are adopted to orient and help focus the reader's attention to the primary building block of the theoretical model. People-management processes are considered important in the development of superior service solution, because services are delivered by people for people (Lovelock and Wirtz 2011). In this sense, customers, employees, and leaders are integral parts of the service solution provision process and underpin the innovativeness and customised nature of service solutions, and thus affect the superiority of service solutions. In this sense, they are coupled through the high inter-dependency nature of PSFs, which implies active interactions between these people (leaders, employees, customers) in the service solution provision process (Storbacka 2011; Chan et al. 2010; Galberaith 2002). Knowledge-management processes are considered critical, because firstly; PSFs are knowledge based firms, second; a service solution is designed based on the application of knowledge which is sophisticated and expertise (Walsh and Gordon 2010; Jaakkola and Hakanen 2006; Lowendahl 2000), and third; the output is knowledge, which is sophisticated and expertise too (Strambach 2008). Thus, if a PSF does not have the ability to manage people, its knowledge processes, and apply its knowledge; any effort to provide service solutions are likely to be impaired.

This study, as shown in Figure 4.1, argues that the consequence of knowledge management processes and people management processes to provide service solutions in terms of service solution superiority for the PSF is brand equity (couched in terms of both customer-based and firm-based brand equity). The reason underpinning this view is that when the PSF offers service solutions that solve customer problems,

customers stay with the PSF and increase PSFs' customer base and market share (Rust et al. 2004). Further, those customers who stay with the PSF are likely to pay a premium price for the purchased service solutions (Bendixen et al. 2004), which contribute to the profitability, thus developing PSFs' based brand equity. Sections 4.2.2 to 4.2.4 discuss each block of general model in detail.

Figure 4.1
Model development: Stage 1



Source: developed for this research

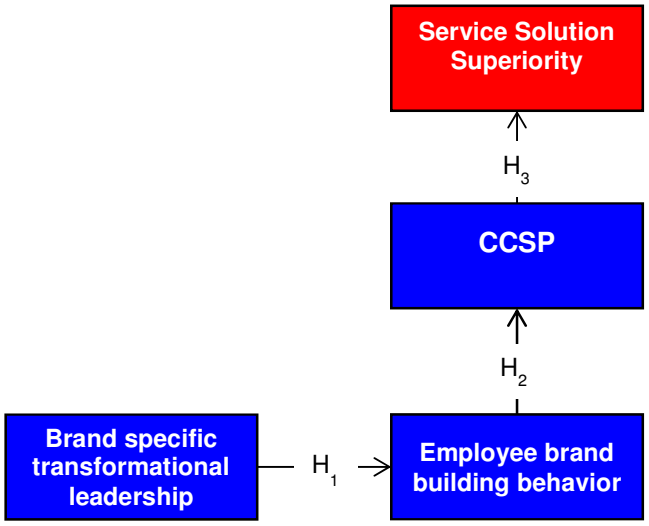
4.2.2. Model development, Stage 2 - Hypotheses 1 to 3: The role of people management processes in the service solution provision process

Services are intangible performances or experiences delivered by people for people (Lovelock and Wirtz 2011). People are considered as actors who play a part in the service process (Bitner et al. 1992). Services marketing literature is enriched with identifying the importance of people in the success of the service provision process (Lovelock and Wirtz 2011; Bitner et al. 1992). Services are about people and their interactions, where the service is produced through cooperation between different parties (Lovelock and Wirtz 2011). While cooperating throughout the service provision process, people's attitudes and belief affect their behaviours and performances (Bitner et al. 1992), and thus, the superiority of the service. Figure 4.2 illustrates the focal components of people-management processes in the service solution provision process in this study and their relationship with the service solution superiority. The people who may impact the superiority of service solutions in the PSF include customers, leaders, and employees.

The content analysis of CCSP literature provided in Chapter Two shows that customers are central to the success of services. In highly customised services such as service solutions, CCSP is critical, because throughout the CCSP process customers directly contribute to the customisation of a service solution by helping the PSF to

identify their business problems and needs (Tuli et al. 2007). Further, during CCSP customers share their technical knowledge and experiences with the PSF to design and develop the service solution (Aarikka-Stenroos and Jaakkola 2012). In this sense, the success of service solutions and their superiority depends on the extent of CCSP in the PSF. Given the importance of CCSP in the service solution provision process, the PSF's ability to cooperate with customers is an important factor in providing service solutions that addresses the business customer's needs. The underlying reason for this contention is that if customers wish to cooperate with the PSF, but the PSF does not have the capacity to cooperate with customers, any effort from customers in the service solution provision process is counterproductive and not beneficial to the service solution. To this end, CCSP is viewed here from the firms' perspective and represents the extent a PSF cooperates with its customers during the service solution provision process (see Ngo and O'Cass 2013; Agarwal and Selen 2009).

Figure 4.2
Model development: Stage 2



Source: developed for this research
Note: blue rectangles represent people management processes

Among the people involved in the service solution provision process, the PSF's leaders (managers) and their leadership style is an important factor in providing superior service solution that addresses business customer needs. This view is supported by the contention raised by Lovelock and Wirtz (2011) who argue that the superiority of a service depends on a leadership style that changes the values, goals and aspiration (transformational leadership style) of employees to consistently demonstrate those

values in their behaviours during their interactions with customers. The role of leaders in this research is supporting brand values and branding behaviours through brand specific transformational leadership. Brand specific transformational leadership refers to a leader's approach to motivate followers to act on behalf of the brand by appealing to their values and personal convictions (Morhart et al. 2009).

Figure 4.2 shows that brand specific transformational leadership and employee brand building are central factors that both indirectly and directly lead to improvement in the PSFs' ability to cooperate with their customers and provide service solutions (that are superior in quality and innovative). The focus of leadership style is on the leader's approaches towards supporting the brand. The underlying reason for focusing on the brand and brand values is that services are recognised as intangible and variable in nature (Kotler 2011; Bitner 1992), which makes the evaluation of the service difficult (Amonini et al. 2010; Jaakkola and Halinen 2006; Løwendahl 2005; Maister 1993). Thus, there should be social signals such as a strong brand that communicates the superiority of the service solution to customers, specifically in PSFs (Greenwood et al. 2005). In this sense, the leadership style that supports brand values acts as a key mechanism to overcome the problem of service intangibility and variability. This happens when the leader sends consistent messages about the brand and associated values to employees, enabling them to provide services that are delivered on the basis of the brand's values (Wallace and de Chernatony 2009). Thus, employees who understand the brand's values are better equipped to provide appropriate inputs into the process of CCSP.

The final people element identified in Figure 4.2 presented at the beginning of this discussion is employees with the focus on brand building behaviour. The role of employees in this research focuses on the consistency of behaviours that support the brand and the brand's values, which is fundamental to employee brand building behaviour (Morhart et al. 2009). Employee brand building behaviour refers to the employees' contribution to an organisation's customer-oriented branding efforts, consisting of "in role" and "extra role" brand building behaviour (Morhart et al. 2009). In-role brand-building behaviour refers to the "employees' meeting the standards prescribed by their organisational roles as brand representatives (e.g., written instruction on codices, and rules or unwritten)" (Morhart et al. 2009, p. 123). Extra-role brand-building behaviour refers to the "employee actions that go beyond the prescribed roles for the good of the brand and are discretionary" (Morhart et al. 2009, p. 123).

In this research, the combination of employees "in role" and "extra role" brand building behaviour are considered as employee brand building behaviour. The underlying reason for not separating these two types of behaviours is that some believe

both “in role” and “extra role” behaviour are necessary to obtain an optimum outcome of employees performing their job (Piercy et al. 2006; Williams and Anderson 1991; Organ 1988). Piercy et al. (2006) argue “extra role” behaviours are an important factor to achieve desired outcomes of employee performance, specifically when employees interact with customers throughout the service provision process. Further, previous research shows that “in role” behaviours may contribute to the development of the outcome of employee performance (Piercy et al. 2006). Moreover, the overlap and boundaries between these two behaviours are not easily determined, so that distinguishing the extra role behaviour from in-role behaviour is virtually impossible (cf. Podsakoff et al. 2000; Motowidlo et al. 1997; Van Scotter and Motowidlo 1996).

The underlying reason for focusing on employee brand building behaviour is that employees in service firms are the brand (Sirianni et al. 2013; Lovelock and Wirtz 2011; Hennig-Thurau 2004; Berry 2000) and their performance plays a pivotal role in the success of the service brand (Morhart et al. 2009). Unlike product brands where customers largely focus on tangible features of a product, customers’ perceptions of a service brand depends heavily on the employee behaviour (Hartline et al. 2000), especially in high contact service firms (Bitner et al. 1992), such as PSFs. Building on this discussion, it is argued that if the PSFs wish to have a strong brand in the market, they need employees who understand the brand and the brand’s values and implement those brand values inside the firm (Sirianni et al. 2013; de Chernatony et al. 2004). However, the task of getting employees to build and strengthen an organisation’s brand image (e.g., to act as brand champions) is a challenging task for the PSF (Morhart et al. 2009).

Chapter Three, Section 3.7.2.2, identifies two approache that are considered important and effective in enhancing employee brand building behaviour (e.g., Baker et al. 2014; King and Grace 2010; Morhart et al. 2009; Wallace and De Chernatony 2009). It also shows while some focus on disseminating brand knowledge inside the service firm (Baker et al. 2014; Baumgarth and Schmidt 2010), others raise the role of leaders in supporting brand building behaviour (Morhart et al. 2009; Wallace and De Chernatony 2009; Miles and Mangold 2004). The focus here is on leaders and their effect on employee brand building behaviour, because leaders and their behaviours are considered a key driving force in a service firm’s effort to strengthen its internal branding behaviour (Miles and Mangold 2004).

4.2.2.1. Hypothesis1: BSTFL and employee brand building behaviour

Among different leadership styles, transformational leadership has been the focus of attention in service firms (e.g., Uen et al. 2010; Lovelock and Wirtz 2011; Morhart et al.

2009). This focus revolves around the view that transformational leaders change the values, goals and aspiration of employees to demonstrate the brand's values in their behaviours (Lovelock and Wirtz 2011). The work of Uen et al. (2012) shows there is a positive relationship between transformational leadership style and employee brand building behaviour. The underlying reason for this relationship appears to be that the transformational leader illustrates a vision for the brand, acts as a mentor, and teaches employees to communicate the brand consistently and enthusiastically to internal and external stakeholders through behaviours that support a brand's values (Wallace and De Chernatony 2009). In focusing on branding and employees, Morhart et al. (2009) argue transformational leaders who focus on branding philosophy are more likely to encourage branding behaviours in employees.

Building on the transformational leadership literature (e.g., Bass 1991) and the arguments raised by Wallace and De Chernatony (2009), Morhart et al. (2009), Lovelock and Wirtz (2011), and Uen et al. (2012), brand specific transformational leadership (BSTFL) style appears to have the capacity to inspire employees to adopt their attitudes and behaviour towards the brand (see also Wieseke et al. 2009). Leaders with a positive attitude toward strengthening their brand's values have the capacity to align employee behaviour towards the brand by communicating brand values with employees, mentoring employees and encouraging them to act in accordance with brand visions and brand values (de Chernatony and Segal-Horn 2003).

The alignment between employee behaviour and brand values not only occurs during the employee daily work related duties, but also outside of their daily duties (Morhart et al. 2009). The underlying reason is that the BSTFL style encourages employees to challenge assumptions and perform beyond expectations. Therefore, under training and mentoring of the BSTFL style employees who wish to enhance brand values will come up with constructive ideas and suggestions to strengthen the brand (see Mackenzie et al. 2011 for similar argument). They take the risk of being criticised of interrupting routines by making changes via their suggestions and feedback, which may damage their relationship with others, because they are motivated by the leaders' vision (see Mackenzie et al. 2011 for challenge oriented behaviour). Under the management and guidance of the BSTFL style, employees take risks and help the PSF to enhance the brand, because they trust the leader and his belief about the future of the brand (see Bass 1991 on the issue). In this sense, employees who are trained and understand brand values and align their behaviours towards the brand values act as brand ambassadors and constantly and consistently demonstrate the service brand's values in the service provision process (Sirianni et al. 2013; de Chernatony and Segal-Horn 2003). The leaders' brand supportive behaviours enable employees to internalise

the brand values to behave in accordance with those brand values (Morhart et al. 2009; Vallaster and De Chernatony 2005). Employees who are inspired by their leader and who internalise the brand demonstrate brand supportive behaviour in all the roles they perform in the PSF and act as brand champions and move beyond expectations to support the brand and its values. Therefore;

$H_{1:}$ BSTFL is positively related to the PSFs' employee brand building behaviour.

4.2.2.2. Hypothesis2: Employee brand building behaviour and CCSP

A service brand is a blend of what the service firm claims, what others believe about the service firm, and what the customer really experiences through their interaction with the service firm and encounter during CCSP (Berry 2000). Further, de Chernatony and Segal-Horn (2001) argue that service branding is about consistency in managing the total service brand experience in social processes. In this sense, through interactions and CCSP, customers' experiences and their perceptions of the consistency of brand promises are formed (Verhof et al. 2010; Bitner et al. 2008; Meyer and Schwager 2007). Building on the discussions on CCSP in Chapter Two and the work of Verhof et al. (2010), Bitner et al. (2008), Meyer and Schwager (2007), de Chernatony and Segal-Horn (2001), and Berry (2000), the argument raised here is that the fundamental role of CCSP provides the mechanism where the PSF implements and actualises brand promises throughout the service solution provision process. Furthermore, CCSP is considered as a platform where the customer finds the opportunity to actually experience brand values, because; CCSP refers to the extent the PSF works with customers during the design, development, and delivery of service solutions (Ngo and O'Cass 2013; Agarwal and Selen 2009). This argument is further supported by the contention raised by de Chernatony et al. (2004) who argue that a service brand's values are largely a function of the interactions and cooperation between the service employee and the customer. Given that the PSF's customer service employees are front-line employees who cooperate with the customer to provide the service solution (Maister 1984), they are in a better position to provide the appropriate input into CCSP activities. Based on this contention, the relationship between employee brand building behaviour and the CCSP is highlighted in Figure 4.2.

As mentioned before CCSP here is viewed from the firm perspective and is defined as the extent the PSF works with customers during the design, development, and delivery of service solutions (see, Ngo and O'Cass 2013; Agarwal and Selen 2009). The premise developed here for the hypothesised relationship between employee brand building behaviour and CCSP is that employees who behave in a manner that supports

the brand's values provide appropriate or meaningful input into the process of CCSP, which enables a PSF to cooperate with its customers throughout the service solution provision process. The input employees provide in the CCSP process support brand's values, because they engage in specific types of activities to meet the standards of the firm's brand values (see Morhart et al. 2009). CCSP is where the employee and the customer cooperate to set their objectives, design and develop the service solution, and solve technical issues to ensure the superiority of the service solution. In this setting, customers can understand and evaluate how a PSF puts its effort into implementing brand values to cooperate with customers in the service solution provision process. In this sense, employee brand building behaviour play an important role in demonstrating the service brand's promises by providing brand supportive inputs into the process of CCSP (see Dall'Olmo Riley and de Chernatony 2000).

Employees who support the brand will not only perform their prescribed duties, but also demonstrate extra role behaviour that goes beyond their prescribed duties (King and Grace 2012) to support the brand promises and strengthen brand values (see for similar argument Mackenzie et al. 2011; Choi 2007; Dewett and DeNisi 2007; Van Dyne and LePine1998; Van Dyne et al. 1995). Mackenzie et al. (2011) argue that when employees come up with positive suggestions through their extra role behaviours, these types of behaviours are very constructive and have the potential to improve performance. Further, Piercy et al. (2006) show that sales people who deal directly with customers can improve their sales performance, when they engage in extra role behaviour provided that they perform their in-role behaviour. Building on contentions raised by Mackenzie et al.'s (2011) and Piercy et al.'s (2006), it is argued here that employee brand building behaviour is the accumulation of extra-role and in-role brand building behaviour to improve CCSP. Employees provide the required input into the CCSP through in-role behaviours (see Piercy et al. 2006). Employees may contribute to CCSP by coming up with new ideas and suggestions to solve technical problems, when they engage in extra-role behaviours (see Mackenzie et al. 2011 and the discussion on challenge oriented behaviours in Chapter Three, Section 3.7.2.2). Further, employees who support the brand's values perform their duties more flexibly and respond to customer needs quickly and efficiently, improving the PSF's ability to deliver the customer's requirements through CCSP (see also Williams and Anderson 1991). Further, when employees participate in extra-role activities such as transferring the knowledge they obtain from their contact with customers to their managers, the PSF may identify the points at which the brand promises are not met, detect failure points, and help resolve them (see Morhart et al. 2009). This helps develop the PSFs' CCSP in more efficient ways. Therefore;

$H_{2:}$ Employee brand building behaviour in PSFs' is positively related to CCSP.

4.2.2.3. Hypothesis3: CCSP and service solution superiority

It has been advocated in the solution literature that PSFs in their effort to capture the customers' resources should cooperate with customers closely to be able to integrate customer resources into PSF's resources throughout service solution provision process (Jaakkola and Hakanen 2013; Aarikka-Stenroos and Jaakkola 2012). In this sense, a PSF takes the customers' knowledge and integrates it with its own knowledge to design, develop, and deliver the service solutions that solve customer problems (Aarikka-Stenroos and Jaakkola 2012; Greenwood et al. 2005; Maister 1993). The resource integration occurs through close cooperation between the customer and the PSF, where the initial inputs into the process of customised service solutions are provided (Jaakkola and Hakanen 2013; Aarikka-Stenroos and Jaakkola 2012; Tuli et al. 2007). The initial input customers provide into service solutions provision is customer knowledge about their business needs (Jacob 2006; Henard and Szymanski 2001; Zipkin 2001), knowledge about their business goals, and expert knowledge in their business field (Peled and Dvir 2012). Further, customers have industry-specific knowledge, which helps the PSF to become more aware of changes in the market, such as market and technology trends (Jaakkola and Hakanen 2013; Aarikka-Stenroos and Jaakkola 2012). Figure 4.2 illustrates the relationship between CCSP and service solution superiority. The argument advanced here is that the relationship between CCSP and service solution is positive to a certain level. This implies that once cooperation exceeds a certain level the positive effect of CCSP on service solution decreases or diminishes.

The effect of CCSP on service solutions is based on four key arguments. First, CCSP can reduce the chance of providing inappropriate service solutions for customers by exchanging information during the CCSP process (Fang et al. 2008; Jacob 2006; Menon et al. 2005). Second, CCSP can increase the innovativeness of a solution, because when customers share their knowledge with the PSF during CCSP process, they stimulate idea co-creation by giving the PSF their expertise knowledge and business experiences (Menon et al. 2005). Idea co-creation occurs through different stages of problem identification, service solution design, and solution implementation (Aarikka-Stenroos and Jaakkola, 2012; Tuli et al., 2007). Third, CCSP increases the likelihood of success and goal achievement (Chan et al. 2010), because the customer monitors what is produced as a service solution and how it is produced through the CCSP process (Miller 1986). Fourth, CCSP is important in customising the service solution to the customers' business requirements. The underlying reason to support this

view is that customers' knowledge about their business needs is concealed within them and is not readily accessible (Liao et al. 2010). Customers are the one who provides the information about their business need (Nordin and Kowalkowski 2010; Cova and Salle 2008; Etgar 2008; Tuli et al. 2007) and CCSP performs as a platform to capture the knowledge reside in the customer.

Although some researchers provide support for the positive relationship between the CCSP and the superiority of service solutions (e.g., Aarikka-Stenroos and Jaakkola, 2012; Tuli et al. 2007), this relationship has been questioned by other researchers. The inconsistent propositions or findings across some research raises the question about the conditions under which CCSP is beneficial or how much cooperation is necessary to design and deliver a superior solution. In analysing findings from different research (e.g., Aarikka-Stenroos and Jaakkola, 2012 comparing with Auh et al., 2007; and Ngo and O'Cass 2013), it can be argued that the positive effect of CCSP on the superiority of a service solution diminishes or becomes negative at certain levels.

Some studies show that CCSP has positive and negative effect on service process (see Chan et al. 2010, Hsieh et al. 2004). For instance, Chan et al. (2010) show CCSP increases employee stress, but increases customer value. Hsieh et al. (2004) report that CCSP increases employees' work overload. Further, Auh et al. (2007) argues CCSP may negatively affect the quality of service solution as a result of increasing the level of uncertainty in the service process due to customer interference to impose their ideas in the CCSP process. The level of uncertainty is increased as levels of customisation raises (Hsieh et al. 2004). The high level of customisation reflects a customer's tendency to increase the level of control over service process, which may interfere with the service solution provision process and decreases the superiority of service solutions (Miller 1986). The finding of Ngo and O'Cass (2013) provide some support that CCSP provides a platform that enables customers to increase the pressure on the PSF to reduce the cost and timelines of the service provision process. Pressure from customers may negatively affect the superiority of service solution, because the PSF tries to satisfy customers by reducing their cost and provide the service solution for them with reduced timelines. The consequences of these actions in an effort to satisfy customers may be that PSF is not able to invest enough time, energy, and money to consider other alternative or possible service solutions. In this sense, the alternative service solutions that the PSF ignores in an effort to reduce the cost and the time of providing a service solution may be more effective in solving customer problems.

Further, low levels of CCSP can minimise the opportunity of having customer inputs (e.g., knowledge and expertise) into the service solution provision process, in which negatively impact the identification of the problem (Nordin and Kowalkowski 2010;

Cova and Salle 2008; Tuli et al. 2007), and consequently the superiority of the service solution. However, when the level of CCSP increases, may PSF gain more customer knowledge, which enables the PSF to effectively identify the problem and offer a superior service solution. Thus, with the increase in the CCSP the level of superiority of service solution increases. At very high levels of CCSP, however, customers are likely to gain more control over the service solution provision process (Ngo and O'Cass 2013; Miller 1993). A high level of control may affect a PSF's processes and the customer may force the PSF to reduce specific aspects of service solution to lessen the delivery cost and timelines for the service solution provision (see Ngo and O'Cass 2013 for the similar argument). As such, at very high levels of CCSP the superiority of service solutions starts declining. Consequently, an optimal level of CCSP drives the superiority of PSF's service solutions, below which the relationship is positive and above which the relationship is negative. In other words, both low and high levels of CCSP negatively affect service solution superiority, while an intermediate (or optimal) level of CCSP positively drives the service solution superiority. Therefore;

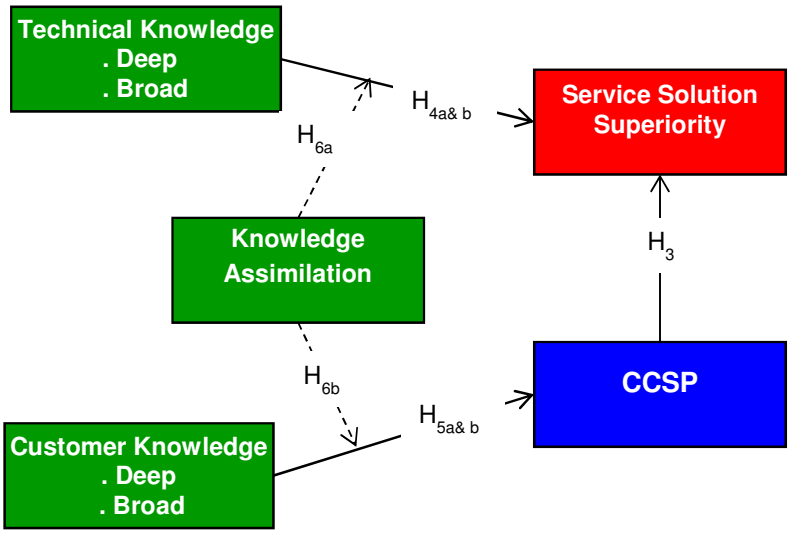
H_3: CCSP has an inverted U-shaped relationship with the PSFs' service solution superiority.

4.2.3. Model development, Stage 3: Hypotheses 4 to 6: The role of knowledge management processes to provide service solutions

Knowledge is seen by many as a source of competitive advantage (Asmussen et al. 2013; Storey and Kahn 2010; Camisón and Forés2010; Grant 1996), specifically in the context of PSFs, as they are knowledge based firms (Aarikka-Stenroos and Jaakkola 2012; Chae 2012; Greenwood et al. 2005). It has been argued that due to the dynamic nature of competition and environmental turbulence, PSFs need to acquire knowledge to keep pace with competition and environmental changes (Aarikka-Stenroos and Jaakkola 2012; Chae 2012). Figure 4.3 outlines the relationship between knowledge-management processes and the service solution superiority, as well as CCSP. The underlying premise for advancing this relationship is that the PSF needs to have a sufficient level of technical knowledge to be able to design the solution (Aarikka-Stenroos and Jaakkola 2012). Further, the PSF needs to have an appropriate level of customer knowledge to customise the service solution to their business needs (Empson 2001). The green rectangles in Figure 4.3 identify the components of the PSFs knowledge-management processes. The knowledge-management processes include technical and customer knowledge as well as knowledge assimilation. The relationship

between knowledge-management processes and service solution superiority and knowledge-management processes and CCSP is illustrated in Figure 4.3.

Figure 4.3
Model development: Stage 3



Source: developed for this research
Note: green rectangles represent knowledge management processes

Technical knowledge is considered by some as a critical input for PSFs to create service solutions (Walsh and Gordon 2010; Jaakkola and Halinen 2006; Greenwood et al. 2005; Empson 2001), because service solutions are designed through the application of expert employee technical knowledge (Greenwood and Empson 2003). Technical knowledge is defined as the expert knowledge necessary to design and develop a service solution (see Prabhu et al. 2005; Grant 1996). Customer knowledge is also a critical input to customise the service solution. The argument advanced here is that customer knowledge affects the service solution through CCSP (Empson 2001). Customer knowledge refers to the knowledge held by the PSF about customers and their needs (see Menguc et al. 2013; Arnold et al. 2010; Day 1994).

As shown in Figure 4.3 the final component of the knowledge processes is knowledge assimilation. Knowledge assimilation plays an important role in the organisation, because recipients incorporate the acquired knowledge into their existing knowledge stocks and elevate their knowledge resources (Engelen et al. 2014; Asmussen et al. 2013; Flatten et al. 2011). Knowledge assimilation refers to how firms analyse, interpret, understand, and spread the acquired information throughout the firm (Engelen et al. 2014; Zahra and George 2002). Knowledge assimilation is deemed necessary, because technical knowledge is difficult to share across the firm (Prabhu et

al. 2005). Further, knowledge assimilation facilitates codifying the knowledge held by the PSF through analysing and interpreting the knowledge (De Luca and Atuahene-Gima 2007; Zahra and George 2001). The relationships between the constructs of interest and related hypotheses are discussed in the following sections (Sections 4.2.3.1 to 4.2.3.3).

4.2.3.1. Technical knowledge and service solution superiority

It has been advocated that a key path to customer retention and customer acquisition rests in the PSF's ability to provide superior service solutions that satisfy business customer's need better than competitors (Hogan et al. 2011; Barr and McNeilly 2003). To provide a superior service solution that satisfies business customers' need, PSFs need to possess technical knowledge, as shown in Figure 4.3 (Greenwood et al. 2005; Lowendahl et al 2001; Starbuck 1992). There are two underlying reasons supporting the view that the possession of technical knowledge is critical for PSFs. First, synthesising the work of Hogan et al (2011) and Cohen and Levinthal (1990), service solutions can be viewed as innovative offerings that are based on the application of technical knowledge. Second, supporting this view is the work of Von Nordenflycht (2010**)** who contends that the PSF's specific expertise is the manifestation of the level of their technical knowledge, and is the foundation of their ability to offer superior solutions to the customer.

Given that PSFs transform technical knowledge into service solutions in an effort to satisfy business customers' needs (Von Nordenflycht 2010; Strambach 2008), some raise the point that the level of technical knowledge determines the superiority of service solutions (see also Aarikka-Stenroos and Jaakkola 2012). Further, it has been shown that technical knowledge determines a firm's capacity to create and implement new and innovative ideas (Zahra et al. 2009). Extending the argument raised by Zahra et al. (2009) into the domain of PSFs, one can adopt the view that technical knowledge increases idea generation capacity to provide customised service solutions, which are technically innovative and unique offerings in the market. Greenwood et al. (2005) argue even when a PSF duplicates a service from one customer to another customer, the service is still new for the second customer as it should be further customised based on the second customer's specific requirements.

Within the literature two different dimensions of technical knowledge are identified, encompassing deep and broad technical knowledge (Prabhu et al. 2005). The main reason to focus on the role of deep and broad technical knowledge is that these two dimensions of technical knowledge are key determinants of providing the

main or core service/product or new service/product (Prabhu et al. 2005; Katila and Ahuja 2002). The definition of deep technical knowledge adopted here is developed from the work of Prabhu et al. (2005) and Carlo et al. (2012). Prabhu et al. (2005) define technical knowledge as knowledge applied to useful purposes and Carlo et al. (2012) define deep knowledge as the relative quality and level of detail that a firm can leverage for distinct knowledge elements in its knowledge base. Building on the work of Carlo et al. (2012) and Prabhu et al. (2005) deep technical knowledge is defined as the degree of detail and complexity of a PSF's expert knowledge of the technical and expertise field of their operation.

to develop the definition of broad technical knowledge the work of Carlo et al. (2012) and Prabhu et al. (2005) are used. Prabhu et al. (2005) define technical knowledge as knowledge applied to useful purposes and Carlo et al. (2012) define broad knowledge as the level of heterogeneity within its relevant knowledge base. Thus, broad technical knowledge here is defined as the degree of heterogeneity and dissimilarity of a PSF's expert knowledge of their technical field of operation (adapted from Carlo et al. 2013; Prabhu et al. 2005). While deep and broad technical knowledge have received attention in a range of product domain settings, it has received very little attention in the service domain (except Carlo et al. 2012). However, drawing from the research in the product domain, as well as the service domain, one may adapt and apply this body of work to build the theory of deep and broad technical knowledge in PSFs' context. The first part of the theory development in the next section (Section 4.2.3.1.1**)** discusses the effect of deep technical knowledge on the service solution superiority and the second part discusses the effect of broad technical knowledge (Section 4.2.3.1.2) on the service solution superiority.

4.2.3.1.1. Hypothesis 4a: Deep technical knowledge and service solution superiority

As discussed in Section 4.2.3.1, deep technical knowledge is a key component of technical knowledge, which explains the degree of depth and complexity of a PSF's expert knowledge of their technical and expertise field of operation. Building on the work of Carlo et al. (2013) and Prabhu et al. (2005), this section examines the relationship between deep technical knowledge and service solution superiority, which their relationship is shown in Figure 4.3. Given that the concept of deep technical knowledge has rarely been examined in service context (except for Carlo et al. 2012), some literature related to the product domain research is borrowed to build the theory in PSFs context and develop the hypotheses. In the product domain, researchers have

found deep technical knowledge has different effects on organisational outputs, such as innovation. For instance, Prabhu et al. (2005) found a positive and significant relationship between deep technical knowledge on innovation performance. In PSFs' context, Carlo et al. (2012) report an indirect effect for deep technical knowledge on the level of innovation in the form of process, services, and IT platforms. Others, however, raise issues related to the negative impact of deep technical knowledge such as a lack of idea generation in innovation (Zhou and Li 2012). Given the similarities between service solutions and innovation outlined in Section 4.2.3.1, the innovation literature is considered useful to build the theory in PSFs' context for this study.

In extending the literature on the effect of deep technical knowledge on innovation into the service solution domain, it is expected that deep technical knowledge positively influences the PSF's service solution superiority up to a certain level. There are several reasons for expecting an initial increase in the effect of deep technical knowledge on the service solution superiority. First, deep technical knowledge is limited to a specific area, it is easily disseminated and internalised in the PSF, thus the probability of finding and selecting the best technical knowledge to solve customers' problem are increased (see De Luca and Atuahene-Gima 2007 for a similar argument in the product domain). Second, deep technical knowledge increases the familiarity of the PSF with the specific details of technical knowledge in the field and facilitates the PSFs' ability to select the best pieces of knowledge that can be useful in crafting solutions to solve customer problems (Zhou and Li 2012; Katila and Ahuja 2002). Third, deep technical knowledge decreases the effect of trial and error by increasing the expertise to solve more complex problems and implement new ideas to solve customer problems in less time (Katz and Du Preez 2008; Prabhu et al. 2005). As such, building on the prior literature (e.g., Katz and Du Preez 2008; Laursen and Salter 2006; Prabhu et al. 2005; Zahra and George 2002) deep technical knowledge facilitates synthesising new ideas and increases the ability to apply technical knowledge in service solution provision process. In this sense, it is expected that the PSF who possesses deep technical knowledge will be more likely to provide superior service solutions.

However, beyond a certain point (e.g., level), an excessive level of deep technical knowledge may be detrimental to the service solution superiority (see Zhou and Li 2012 for similar argument). An over-emphasis or focus on deep technical knowledge can lessen the PSF's capacity to explore knowledge in other domains that might be helpful to design and develop superior service solutions. The underlying reason for this argument is that some pieces of knowledge that might be helpful to solve customer problems can be outside of the PSFs' technical domain (see Laursen and Salter 2006 for the same argument). Further, an excessive level of deep technical

knowledge may increase organisational inertia (Zhou and Li 2012; Tripsas and Gavetti 2000). In this sense, fewer new ideas are developed or come into the PSF, and consequently fewer alternative service solutions are designed (see Zahra and George 2002 for a similar argument). Further, because of inertia, access to greater technical knowledge in other domains is abandoned (Zhou and Li 2012). As such, an excessive level of deep technical knowledge can lessen the PSF's capacity to explore and use new ideas to create and deliver superior service solutions. Consequently, it is argued here that there is an optimal level of deep technical knowledge to drive the superiority of service solutions, in which below the optimal level the relationship is positive and above which the relationship is negative. Therefore;

H_{4a}: Deep technical knowledge has an inverted U-shaped relationship with the PSFs' service solution superiority.

4.2.3.1.2. Hypothesis 4b: Broad technical knowledge and service solution superiority

Broad technical knowledge is another key component of technical knowledge. Building on the work of Carlo et al. (2012) and Prabhu et al. (2005) as discussed in Section 4.2.3.1, broad technical knowledge is defined as the degree of heterogeneity and dissimilarity of a PSF's expert knowledge of their technical field of operation. Building on previous research, this section discusses the relationship between broad technical knowledge and service solution superiority as shown in Figure 4.3. Similar to deep technical knowledge, the literature from both the product and service domain is adopted to build the theory and develop the hypotheses on the relationship between broad technical knowledge and service solution superiority in PSF context. Adopting the literature from the product domain, especially that with similar characteristics to professional services is undertaken because the concept of broad technical knowledge has rarely been examined in service contexts. The research on broad technical knowledge in the product domain provides partial support for the contention that broad technical knowledge improves manufactures' ability to innovate better than competitors (see Prabhu et al. 2005). In the service context, Carlo et al. (2012) did not find the direct effect for broad knowledge on the level of innovation (e.g., referred to as base, process or service). The comparison between the findings in product domain and service domain reveals some level of inconsistency on the effect of broad technical knowledge of innovation outcomes. The work of Prabhu et al. (2005) and Carlo et al. (2012) are comparable because both studies focus on industries which are well known for being knowledge driven (IT services and the pharmaceutical industry).

To reconcile the contradictory findings on the effect of broad technical knowledge on innovation, which identifies positive and negative effects of broad technical knowledge helps to discuss this relationship. For example, learning and understanding many concepts included in broad technical knowledge that enters the firm is difficult and challenging (Zahra et al. 2000; Bohn 1994). Further, acquiring broad technical knowledge is time consuming, expensive, and unreliable (Katila and Ahuja 2002; Schilling and Green 2011) and distracting (Prabhu et al. 2005). However, broad technical knowledge brings new ideas into the firm that can be applied in developing diverse functions or activities in the firm (see, De Luca and Atuahene-Gima 2007). In the product domain, it is argued that broad technical knowledge increases idea generation, which may enhance the novelty of an offering (De Luca and Atuahene-Gima 2007; Prabhu et al. 2005). However, an excessive focus on broad technical knowledge may also be detrimental to the success of an offering. The underlying reason to justify this contention is that the high degree of heterogeneity of technical knowledge elements hampers recombination of knowledge and transferring knowledge across the firm (see, De Luca and Atuahene-Gima 2007). Therefore, applying excessive broad technical knowledge may lead to providing a service solution that cannot satisfy business customers' need.

In extending the literature on the broad technical knowledge into the service solution domain, it is expected that the relationship between broad technical knowledge and service solution superiority is positive up to a certain level. Building on the work of Laursen and Salter (2006), Tailor and Greve (2006), Carlo et al. (2012), and Yli Renko et al. (2001), some benefits of broad technical knowledge in the PSF are identified here. First, broad technical knowledge improves the number of ideas a PSF may generate to design a solution. Second, broad technical knowledge increases the superiority of the service solution or enhances the innovative features of the service solution by enriching the firm's knowledge base and combining new and different pieces of technical knowledge. The consequences of these benefits for the PSF increase the PSFs' ability to offer different types of service solutions (e.g., an accounting firm that offers auditing solutions) to respond to different customer needs in different market segments (see the contention raised by Carlo et al. 2012; Prabhu et al. 2005). As such, it is expected that the positive effect of broad technical knowledge on service solution superiority increases.

While the above discussion illustrates the positive aspects of broad technical knowledge, it is also argued that an excessive level of broad technical knowledge may result in decreasing the superiority of service solutions. There are several reasons to support this argument. First, acquiring broad technical knowledge is time consuming,

expensive, and unreliable, which are significant disadvantages of having too much focus on broad technical knowledge (Schilling and Green 2011; Katila and Ahuja 2002). Thus, while broad technical knowledge brings new ideas, new ideas may not come at an appropriate time, or the new ideas might not be applicable (Laursen and Salter 2006). Second, as broad technical knowledge brings more new ideas into the PSF, it is possible that a poor new idea is chosen to solve the problem. Poor ideas might be chosen because the PSF is not familiar with the new technical knowledge (for similar argument see De Luca and Atuahene-Gima 2007). Therefore, the probability of failure of the service solution increases. Third, broad technical knowledge can cause distractions within the PSF (see Prabhu et al. 2005 for the same argument about product innovation), because learning many concepts or skills can be difficult and developing an understanding of them is more challenging (Zahra et al. 2002; Bohn, 1994). Thus, at a specific point or level a greater focus on broad knowledge might be hazardous to the service solution superiority, and one may expect to see declines in the relationship between broad technical knowledge and service solution superiority. Consequently, it is argued here, that there is an optimal level of broad technical knowledge for service solution provision, in which below the optimal level the relationship is positive and above which the relationship is negative. Therefore;

H_{4b}: Broad technical knowledge has an inverted U-shaped relationship with the PSFs' service solution superiority.

4.2.3.2. Customer knowledge and CCSP

The relational and customised nature of service solutions requires PSFs to comprehensively identify the customer needs and preferences (Lowendahl 2005; Empson 2001). The underlying rationale for this claim is seen in the work of Menguc et al. (2013) and Day (1994), who argues that firms should improve their customer knowledge and identify customer needs. Foss et al (2011) also support this claim by arguing that the application of customer knowledge may result in benefits for the customer by providing services and/or products that satisfy their needs. In particular, when a service firm learns about the customer and provides them with what they need, the customer responds by taking different actions towards the service firm, such as cooperating with the service firm (see Foss et al (2011). Extending these arguments to the PSF context with their specific characteristics such as, extensive interaction with customers and highly customised service offerings (Jaakkola and Halinen 2006; Løwendahl 2005; Maister 1993), the importance of customer knowledge appears to be twofold. First, focusing on interaction characteristics of PSF, providing a superior

service solution involves extensive CCSP, in which the PSF and the customer need to cooperate to provide the solution (Aarikka-Stenroos and Jaakkola 2012). To enhance cooperation, the PSF should understand customer's business deeply (Miller et al. 2002). Second, focusing on the customisation nature of service solution, a service solution should be customised to the specific needs of the customer (Nordin and Kowalkowski 2010). Therefore, the PSF should have enough knowledge about the business customers' needs and requirements to cooperate with them and customise the solution to those needs (Miller et al. 2002).

As shown in Figure 4.3, both deep and broad customer knowledge underpin a PSF's extent to cooperate with customers (see Arnold et al. 2010 for similar arguments). In a general sense, both deep and broad customer knowledge positively influence a firm's capacity to possess related knowledge to current customers and knowledge about new customers (Zahra and George 2002; Van Wijk et al. 2001) to adapt to changes (Danneels 2008). Specifically, in the cooperative and interactive relationship that characterises the PSFs, both deep and broad customer knowledge create advantages for the PSF. The underlying reason for this argument is that deep and broad customer knowledge allows the firm to identify or recognise more opportunities and pursue more secure and favourable opportunities (Gargiulo and Benassi 2000).

In this study, deep customer knowledge is the degree of detail and complexity of customer knowledge held by the PSF (Arnold et al. 2010). Broad customer knowledge is the degree of heterogeneity and dissimilarity of customer knowledge held by the PSF (Arnold et al. 2010). For example, specifically focusing on both deep and broad customer knowledge in the service context, Arnold et al. (2011) claim that broad customer knowledge improves the service firm's ability to identify the problem and deep knowledge decreases the confusion in the innovation process. Thus, they conclude that both deep and broad customer knowledge work independently and have independent effects on service firms' incremental and radical innovation performance.

4.2.3.2.1. Hypothesis 5a: Deep customer knowledge and CCSP

Building on the contention proposed by Arnold et al. (2011), it is argued here that deep and broad customer knowledge have independent and differential effects on CCSP. Given the relational nature of CCSP and the importance of CCSP to develop superior service solution in PSF context (Jaakkola and Halinen 2006; Løwendahl 2005; Maister 1993), customer knowledge is critical to develop the relationship with customers (Arnold et al. 2011; Day 1984). Deep customer knowledge improves CCSP, because it increases the familiarity of the PSF with the customers' business, which enhances the

PSF understanding of customers and their needs and preferences (Eggert et al. 2014; Arnold et al. 2010). The high level of customer knowledge facilitates customisation of the service solutions, which happens through cooperation (Miller et al. 2002), because the PSF understands the complexity of the customer's problem and is able to find the solution which suits the customer's business requirement. Moreover, a higher level of deep customer knowledge facilitates goal setting and improves the outcome of cooperation, because the PSF has detailed information about customer constraints and obligations. Furthermore, as a result of deep customer knowledge, joint problem solving and joint decision making through cooperation can be facilitated, because the PSF is fully aware of the resources and capabilities of the customer. In this sense, PSFs' ability to cooperate with customers increases, because deep knowledge about the customers and their business decreases the communication gap between customer and the PSF and cooperation is improved (see comparable argument in Lovelock and Wirtz 2011). Therefore;

H_{5a}: Deep customer knowledge is positively related the CCSP.

4.2.3.2.2. Hypothesis 5b: Broad customer knowledge and CCSP

Given the high velocity of change in the markets (Kumar and Christodoulopoulou 2014; Engelen et al. 2014; O'Cass and Sok 2013; Probert et al. 2013; Day 2011; Prabhu et al. 2005), some believe having broad knowledge increases the adaptability and flexibility of the firm to respond to changes (Prabhu et al. 2005). The underlying reason for this contention is broad knowledge decreases inertia inside the firm (Tripsas and Gavetti 2000). Inertia refers to avoiding change or avoiding taking action (Tripsas and Gavetti 2000). Given that CCSP is dynamic in nature (Brodie et al. 2011), broad customer knowledge positively affects it, by bringing in greater diversity of ideas about the customers' needs and preferences (see De Luca and Atuahene-Gima 2007).

Broad customer knowledge affects the PSFs' ability to develop new routines and processes in CCSP that may attract both existing and new customers (see, Christensen 1997). The underlying literature supporting this contention is the work of Kim et al. (2013) and Arnold et al. (2011) who argue that the application of broad knowledge results in having a customer-centred firm. Building on the argument raised by Kim et al. (2013) and Arnold et al. (2011), it is argued here that broad customer knowledge enhances the PSFs' CCSP by broadening their understanding of customer needs and identify potential opportunities to cooperate (e.g., for example if the trend in customer needs is changing). In this sense, a PSF can identify more opportunities to cooperate with customers and offer them what satisfy their business requirement. Building on

previous research (Kim et al. 2013; Laursen and Salter 2006; Gargiulo and Benassi 2000), the argument advanced here is that a PSF with broad customer knowledge has a greater potential to recombine different pieces of their customer knowledge to enhance joint decision making and joint goal settings. The underlying rationale for this argument is that diverse customer knowledge gives the PSF more holistic insight to set more viable objectives. The broad range of opportunities resulting from broad customer knowledge is expected to increase the PSF's ability to mobilise the customer, because there are more viable and favourable options to evaluate and consider. Therefore;

H_{5b}: Broad customer knowledge is positively related to CCSP.

4.2.3.3. Moderation role of knowledge assimilation

The existing research on knowledge has shown that knowledge exchange across the firm and understanding and interpreting knowledge is a very difficult and challenging task for firms (Zhou and Li 2012; De Luca and Atuahene-Gima 2007; Zahra et al. 2003; Grant 1996). This task is more challenging in the context of PSFs, because the knowledge of providing the service solution resides in employees and developing a common understanding and interpreting of the knowledge is more difficult (Swart and Kinnie 2012; Von Nordenflycht 2010; Kim and Gong 2009; Maister 1983). Knowledge assimilation appears to be a solution to the problem of knowledge exchange and knowledge understanding to be able to apply acquired knowledge in firms' processes more efficiently (Zhou and Li 2012; De Luca and Atuahene-Gima 2007; Zahra et al. 2003; Grant 1996).

The effect of knowledge assimilation on the relationship between technical knowledge and service solution superiority and customer knowledge and CCSP is illustrated in Figure 4.3 (Section 4.2.3). Knowledge assimilation is deemed necessary to codify the elements of knowledge by analysing and interpreting them in order to use them more efficiency and effectively (Zahra and George 2001). As noted in Section 4.2.3 knowledge assimilation refers to the analysis, interpretation, understanding, and spreading of the acquired information throughout the firm (Zahra and George 2002). Within organisational learning theory, the assumption is held that knowledge is imperfectly spread across people and units in a firm (Hargadon and Sutton 1997). As knowledge resides in individuals, there are some situations where the ideas of a group of people or a business-unit may provide input for other activities or processes in the business or across other units (Kostopoulos et al. 2010). When knowledge is exchanged between employees across the firm, employees in all units have a greater chance of gaining a similar level of understanding of the knowledge and have access to

the same knowledge that can be applied to solve a problem (Kostopoulos et al. 2010; De Luca and Atuahene-Gima 2007; Hargadon and Sutton 1997). On this issue, Brandon and Hollingshead (2004) argue assimilating knowledge develops a common cognition across the firm to encode, store, retrieve, and communicate knowledge from different knowledge domains, which results in greater efficiency and effectiveness.

Knowledge assimilation happens through activities, such as formal meetings and discussions (De Luca and Atuahene-Gima 2007). These activities can facilitate the flow of knowledge that can be difficult to transmit and understand (Jaworski and Kohli 1993). The analysis and interpretation of knowledge occur through discussions and meetings between employees in the organisation (De Luca and Atuahene-Gima 2007). When the result of knowledge interpretation and analysis is disseminated across the firm, all people inside the firm gain a greater understanding of the knowledge (De Luca and Atuahene-Gima 2007; Brandon and Hollingshead 2004). To this end, knowledge assimilation has specific advantages for the firm, including:

- Knowledge assimilation helps avoid organisational inertia by developing new ideas through discussion meetings, which ideas are later applied to develop processes (Camisón and Forés 2010).
- Knowledge assimilation increases the breadth and depth of knowledge bases, because knowledge assimilation can act as a channel to transfer knowledge between different organisational units (Kostopoulos et al. 2010). The transferred knowledge then can be applied in developing processes across the organisation (e.g., CCSP) or the output (e.g., service solutions) (see Kostopoulos et al. 2010).
- Knowledge assimilation increases the common understanding of the knowledge across the firm; thus, everybody interprets the same thing in the same manner (Brandon and Hollingshead 2004).

4.2.3.3.1. Hypotheses 6a: Moderation role of knowledge assimilation on the relationship between broad and deep technical knowledge and service solution superiority

It has been advocated in the organisational learning literature that advantages of knowledge assimilation can be applied to both deep and broad knowledge to enhance organisational processes (Zhou and Lee 2012; De Luca and Atuahene-Gima 2007; Kale and Singh 2007; Tsai, 2001). Drawing on previous findings it is argued here that, knowledge assimilation is more beneficial when the knowledge held by the PSF is broad rather than deep. Previous research contends that knowledge assimilation synthesises the deep knowledge held by the firm and improves the depth of acquired knowledge and

increases the common understanding of the knowledge. However, the findings of some research do not fully support this contention (Zhou and Lee 2012; De Luca and Atuahene-Gima 2007; Kale and Singh 2007; Tsai 2001). For example, De Luca and Atuahene-Gima (2007) report a partial mediation effect of knowledge assimilation between deep market knowledge and innovation performance. Similarly, Zhou and Li (2012) do not find a significant moderation effect of knowledge assimilation on the relationship between deep knowledge and radical innovation. Further, the result of the effect of knowledge assimilation on broad knowledge provides inclusive results similar to the effect of knowledge assimilation on deep knowledge. For instance, Zhou and Li (2012) report a positive moderation effect of knowledge assimilation on the relationship between broad knowledge and radical innovation. Contrary to Zhou and Li (2012) the findings of De Luca and Atuahene-Gima (2007) on the moderation effect of knowledge assimilation on the relationship between broad knowledge and innovation performance is not supported. Given that Zhou and Li (2012) use high tech companies which are knowledge based and are more similar to PSF in terms of reliance on knowledge, this research follows a similar argument that knowledge assimilation is more beneficial, when the knowledge held by the PSF is broad.

This contention rests on the inherent differences between deep and broad knowledge. First, generally deep knowledge is limited in scope, easy to internalise, and is learnt quicker (Boh et al. 2014; Carlo et al. 2012), because the level of familiarity with the deep knowledge is higher (Zhou and Lee 2012). In contrast to deep knowledge, broad knowledge is diverse, is more unfamiliar, difficult to learn, and internalise as it comes from diverse domains (Boh et al. 2014; Zhou and Lee 2012; Yayavaram and Ahuja 2008). Second, deep knowledge is associated with less risk and uncertainty, while broad knowledge is associated with high risk and uncertainty resulting from greater level of unfamiliarity (Schilling and Green 2011). Therefore, more discussions are required to select appropriate pieces of broad knowledge to reduce the risk of selecting inappropriate knowledge. Drawing on the fundamental differences between broad and deep knowledge the view taken here is that broad knowledge requires more analysis and interpretation to decode, understand, and internalise.

Building on the above discussion, it is expected that knowledge assimilation enhances the relationship between broad technical knowledge and the service solution superiority, rather than the relationship between deep technical knowledge and service solution. Further, it is also suggested that the strongest effect of knowledge assimilation occurs on broad technical knowledge. First, broad knowledge brings new ideas and innovative applications of knowledge and knowledge assimilation ensures that the broad knowledge is matched with the processes and routines in the firm and can be applied to

enhance the superiority of service solutions (Yayavaram and Ahuja 2008). Second, understanding broad technical knowledge is a challenging task, because learning new and different skills is more difficult (Zahra et al. 2002; Bohn 1994). Understanding and learning different skills and knowledge is easier when people across the firm discuss pieces of new knowledge and exchange their ideas about how to apply them in their processes (Zahra et al. 2002). In this sense, knowledge assimilation is a good practice for learning and understanding broad technical knowledge and applying it to provide superior service solutions through discussions, meetings and reaching to common understandings. Third, when technical knowledge is broad, not all of it can be usefully employed to provide the service solution. Knowledge assimilation ensures that the necessary pieces of technical knowledge that enhances service solution superiority have a greater probability of being extracted and used. Fourth, knowledge assimilation improves internalising the broad technical knowledge (Zahra and George 2002; Zahra et al. 2000), because it clarifies the meaning and application of unfamiliar knowledge. Assimilating broad technical knowledge promotes the ability to select the most suitable pieces of broad technical knowledge, thus; the risk associated with providing inappropriate service solutions is decreased. Therefore,

> *H_{6a}: Knowledge assimilation is more beneficial in providing superior service solutions when the PSF possesses broad technical knowledge than deep technical knowledge.*

4.2.3.3.2. Hypotheses 6B: Moderation role of knowledge assimilation on the relationship between broad and deep customer knowledge and CCSP

The previous section (Section 4.2.3.3.1) discussed why knowledge assimilation is more beneficial on the relationship between broad technical knowledge and service solution superiority rather than the relationship between deep technical knowledge and service solution superiority. The same reasoning and justification is applied to support the view that knowledge assimilation is more beneficial in enhancing the relationship between broad customer knowledge and CCSP, rather than deep customer knowledge and CCSP. Some key points discussed in Section 4.2.3.3 are worth reconsidering here. Knowledge assimilation creates new ideas that can resolve the problem of competence traps (Camisón and Forés 2010) and expands the firm's knowledge base as well as elevating the level of understanding of the knowledge inside the firm (Kostopoulos et al. 2010; Brandon and Hollingshead 2004). For a number of reasons it is expected that knowledge assimilation enhances the relationship between broad customer knowledge and CCSP, rather than the relationship between deep customer knowledge and CCSP

due to some reasons. Broad customer knowledge broadens the opportunities and options to cooperate with customers. As the level of familiarity with broad customer knowledge is low, knowledge assimilation helps the PSF to select opportunities that are more viable. Knowledge assimilation facilitates selecting the most favourable opportunities, because as a result of exchanging ideas the PSF can evaluate their abilities and understand which opportunity is more viable for the PSF. The correct selection of opportunities resulting from knowledge assimilation decreases the risk of choosing the wrong option and opportunities that the PSF is not capable enough to implement. Further, these activities mobilise the customer to cooperate with the PSF in a more effective manner, because PSFs have more proof to show customers that they are capable enough to serve them.

In contrast to broad customer knowledge, deep customer knowledge brings detailed knowledge into CCSP about the current customers and what they need. Therefore, the PSF has enough understanding on how to serve these customers. When the PSF has deep customer knowledge, they are more aware of customer resources, skills, business objectives and goals. Thus, less knowledge assimilation is required to develop CCSP through deep customer knowledge. Therefore;

H_{6b}: Knowledge assimilation is more beneficial in driving CCSP when the PSF possesses broad customer knowledge than deep customer knowledge.

4.2.4. Model development Stage, 4: Hypotheses 7 a, b, and c: Service solution superiority and brand equity

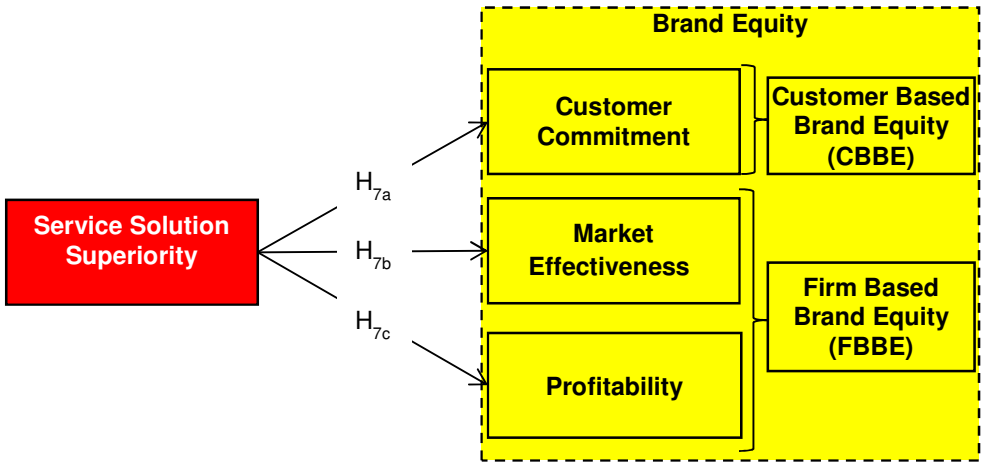
Superior service solutions have benefits for both the customer and the solution provider (e.g., the Storbacka 2011; Nordin and Kowalkowski 2010; Pawar et al. 2009; Oliva and Kallenberg 2003; Milles et al. 2002). As shown in Figure 4.4 there is a predicted effect for the superiority of service solutions on brand equity. The focus here is only on the benefits that a PSF may acquire through the superiority of its service solutions, including stronger brand equity in the form of committed customers, higher margins, profit, and a consistent revenue stream (Storbacka 2011; Nordin and Kowalkowski 2010; Pawar et al. 2009; Oliva and Kallenberg 2003). As discussed in Chapter Three, Section 3.7, brand equity is often studied in two forms focusing on customer-based brand equity and firm-based brand equity (Christodoulides and de Chernatony 2010).

Customer-based brand equity as discussed in Chapter Three, Section 3.7, is seen as customer responses to the brand (Keller 1993) such as customer commitment, loyalty and satisfaction (Rust et al. 2004). In this research, customer based brand equity is manifested in customer commitment. Customer commitment is defined here as the

enduring desire of a customer to maintain and develop a relationship with the supplier (e.g., PSF) (Walter and Ritter 2003).

As discussed in Chapter Three, firm-based brand equity represents the firm's financial performance in the form of market effectiveness and profitability (Christodoulides and de Chernatony 2010; Zaichkowsky et al. 2010; Simon and Sullivan 1993). Market effectiveness is defined as the degree to which the PSFs market-based goals have been achieved (Vorhies and Morgan 2005). Profitability is defined here as the degree to which the PSF achieves its financial goals (Vorhies and Morgan 2005).

Figure 4.4
Model development: Stage 4



Source: developed for this research
Note: yellow rectangles represent brand equity

4.2.4.1. Hypotheses 7a: Service solutions and customer commitment

The literature review in Chapter Three, Section 3.7, shows that different types of customer response to marketing activities of the firm in the B2B context are identified as brand image, customer loyalty, customer commitment, customer satisfaction, perceived quality, and the like. It is noted that customer commitment is a critical customer response in B2B relationships, because customer commitment is linked to purchase intention and price premiums (Keh and Xie 2009; Lacey 2007). Further, customer commitment is shown to be a strong indicator of high quality relationships (Walter et al. 2003) and a predictor of customer loyalty (Kenneth and Miller 2007) and customer trust (Morgan and Hunt 1994). In relationship marketing, loyalty and trust are identified as two important indicators of relationship quality in the B2B context (Walter and Ritter

2003; Morgan and Hunt 1994; Crosby et al. 1990). Further, commitment shows the desire of the customer to stay with the firm and the mutual benefits that the customer and the firm may gain as a result of having a long term relationship (Morgan and Hunt 1994). Focusing on PSFs, Amonini et al. (2010) found long lasting relationships are one of the main critical factors for the survival of PSFs. Due to the reasons outline above, customer commitment is considered as a critical indicator of customer based brand equity in the B2B PSF context.

The argument here is that a service solution which is superior, results in increasing customer based brand equity in the form of customer commitment. The underlying reason for this contention is that service solutions are risky purchases and evaluation of the quality of service solution before purchasing it is difficult (Amonini et al. 2010; Jaakkola and Halinen 2006; Hitt et al. 2001). The difficulty of evaluation of service solution is due to the intangibility of the service solution and application of complex knowledge used by the PSF (Greenwood et al. 2005; Maister 1993). To minimise the risk when purchasing a solution, customers who have received service solutions which solved their business problem, are more likely remain with the PSF for future service solutions purchases (Auh et al. 2007; Anderson et al. 2007). Further, customers need to share knowledge about their needs with the PSF (Miller et al. 2002), however; customer's knowledge about their business is tacit and difficult to communicate (Betencourt et al. 2002). In this sense, customers prefer to stay with a PSF that is familiar with their business requirements to avoid the problem of transferring tacit knowledge. Moreover, finding a new or alternative PSF to provide service solutions might be costly for the customer by means of time and energy, thus those customers who receive superior service solution prefer to stay with that PSF.

To understand what causes a customer to stay with a PSF, Chenet et al. (2010) shows that in B2B context service quality is an important antecedent of the customer's commitment. Further, Amonini et al. (2010) report service quality is an important factor that impacts customers' formation of a long term relationship with a PSF. Geyskens et al., (1996) show committed customers have higher expectations of the benefit they can gain from the relationship. As such, it is expected that a service solution that is superior in quality and innovativeness, and has the capacity to create desirable outcomes for a business customer induces the customer to stay with the PSF (Nordin and Kowalkowski 2010; Sharma et al. 2008; Miller et al. 2002, Hitt et al. 2001). Therefore;

H_{7a}: Service solution superiority is positively related to the PSF's customer-based brand equity.

4.2.4.2. Hypotheses 7b: Service solutions and market effectiveness

The relationship between service solution superiority and market effectiveness is shown in Figure 4.4. The relationship predicted in Figure 4.4 is premised on the assumption that service solutions create a win-win situation for the customer and the PSF, because they focus on customers' need and satisfy those needs (Sharma and Iyer 2011). The contention raised here is that a service solution, which is distinguished by high quality, innovative aspects, and satisfying the business customer's requirements has the capacity to enhance PSF's market effectiveness. The superiority in satisfying business customer needs results in achieving market objectives and contributes to increased margins and enhanced competitive position for the solution provider (Sharma and Iyer 2011; Etgar et al. 2011; Anderson et al 2006). The underlying reason for this argument is that superior service solutions that solve customer problems reduce the perception of risk for the customer (Fang et al. 2008). Therefore, when customers perceive less risk associated with purchasing service solution, the customers' demand for the service solution the PSF provides is increased (Storbacka 2011). Further, PSFs, which are recognised in the market by producing superior service solutions that solve customer problems, are more likely to enhance their market position by attracting new customers and retaining older customer (Hitt et al. 2001). Moreover, in B2B contexts, there are less players in the market and people may know other PSF in the solution businesses very well (Aarikka-Stenroos and Jaakkola 2012; Biedenbach and Marell 2009). As such, being known for providing superior service solutions decreases the customer perceived risk. In this sense, the risk reduction feature of service solution superiority might be a point of difference for customers (Anderson et al. 2006), because it makes customers ascertain that they purchase failure-free service solutions. The consequence of risk reduction is an increase in demand for service solution provision, because existing customers stay with the PSF and new customers are attracted to the PSF. When customers stay with the PSF or new customers are attracted to the PSF, the PSF improves its market effectiveness. Therefore;

> *H_{7b}: Service solution superiority is positively related to the PSF's market effectiveness.*

4.2.4.3. Hypotheses 7c: Service solutions and profitability

Research on service marketing shows that service quality improves service firm financial performance (Lin 2013; Ngo and O'Cass 2013; Parasuraman et al. 1988). Extending the literature on service quality into service solution it is argued that a service solution

that is superior in quality and innovative features is a driver of profitability. Tellis (1986) argues higher price, signal quality, thus a PSF, which offers higher quality solutions can manage a specific pricing strategy that distinguishes themselves from competitors. Customers pay extra money for a service solution which is superior in quality (Milles et al. 2002). As customers are happy to pay extra for quality service solutions that solves their problem, the PSF can consider a different pricing scheme, in different market; thus, increasing the profitability of the PSF by reaching its financial goals (Tellis 1986). Further, the PSF can decrease the cost of marketing activities, because they are known by other market actor for providing superior service solution and would share it with others. As such, the PSF does not need to spend much on promoting the PSF. Therefore;

H_{7c}: Service solution superiority is positively related to the PSF's profitability.

4.3. Summary of the overall model

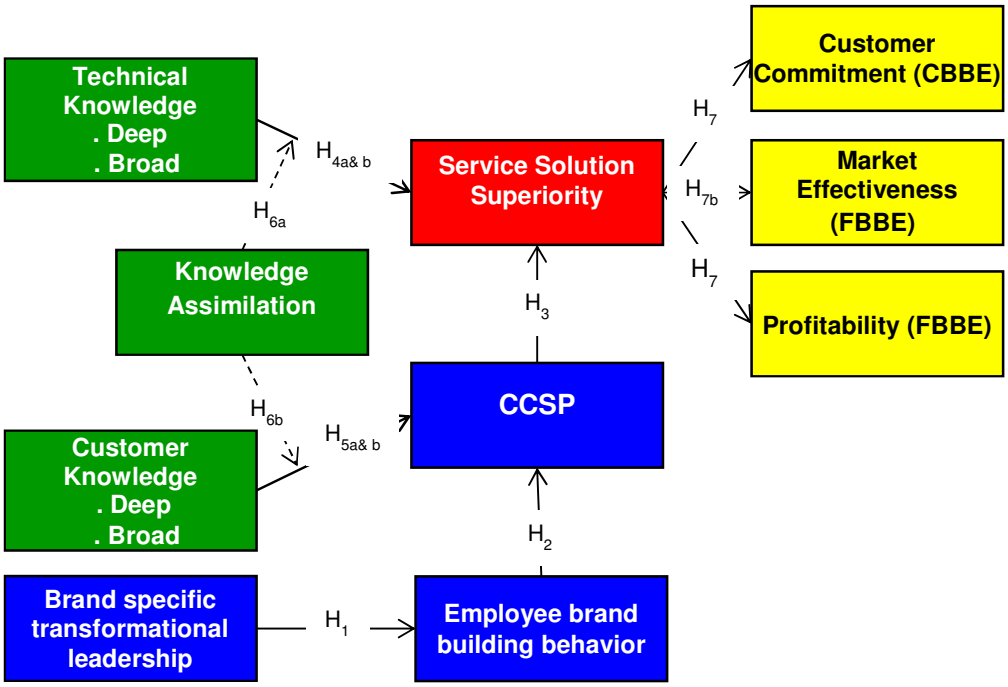
While the demand for the service solutions offered by PSF has dramatically increased, the question on which processes are critical to the design and delivery of superior service solutions is still unanswered. The theory presented here is developed to scrutinise what are the critical inputs into the service solution provision process. Having the specific characteristics of PSFs in mind, including their extensive interaction with customers, highly educated employees, application of expert knowledge, highly customised service offerings, and the high credence quality of offerings, the most important inputs into the process of design and delivery of superior service solution were identified as people-management processes and knowledge-management processes. Further, specific attention was given to brand equity as the output of the service solution superiority. The theory development resulted in the final research model called "B2B Professional service firms service solution model" as the theoretical framework of the study. The final research model is shown in Figure 4.5, where the blue rectangles illustrate people-management processes, green rectangles indicate knowledge-management processes, and yellow rectangles represent brand equity.

In the people-management processes shown in Figure 4.5, the focus was on branding activities of the PSF with the focus on brand specific transformational leadership, employee brand building behaviour, and CCSP. Three hypotheses were developed to address the role of leaders, employee behaviour, and the PSFs ability to work with customers to provide service solutions which are superior. The theory developed related to people management processes section was based on the assumption that the leader with BSTFL style has the ability to motivate and manage

employees to engage in brand supportive behaviours in their work activities. As such, the PSF extends the extent they cooperate with customers, because employees provide the inputs into the CCSP that are consistent with the brand's values.

In the knowledge-management processes shown in Figure 4.5, customer knowledge and technical knowledge were considered as two important types of knowledge that drive the firms' CCSP process and service solution superiority. The focus of knowledge on both technical and customer knowledge were on deep and broad technical and customer knowledge. Further, as shown in Figure 4.5, knowledge assimilation was identified as playing a critical role in enhancing the effect of knowledge on service solution superiority. This contention was advanced because is not knowledge per se that improves service solutions, but specific knowledge assimilated into the PSF. On this point, the premise was put forward that knowledge assimilation is more effective in dealing with broad knowledge compared to deep knowledge in both customer and technical knowledge.

Figure 4.5
B2B Professional service firms service solutions model



Source: developed for this research
Note: blue rectangles represent people management processes
Green rectangles represent knowledge management processes
Yellow rectangles represent brand equity

Finally, as discussed in this chapter the yellow rectangles in Figure 4.5 represent brand equity. Through the discussion in Section 4.2.4 it was theoretically demonstrated

that if the PSF designs and delivers superior service solutions, they can enhance the brand equity in two forms of customer based brand equity and firm based brand equity. In the final component of the model customer commitment represents customer based brand equity and market effectiveness and profitability represent firm based brand equity.

4.4. Conclusion

Consistent with the increasing demand for service solutions, providing a superior service solution is considered to be a strategic weapon in the quest by PSFs to establish a superior competitive market position. The research framework developed here aims to bring attention to the issues of developing strong brand equity in the B2B PSF context. The framework focuses on processes that help PSFs to maintain a superior competitive market position through providing superior service solutions. To develop the theory the key characteristics of PSFs, especially the application of knowledge, extensive level of CCSP (Jaakkola and Halinen 2006; Løwendahl 2005; Maister 1993), and a credible brand (Amonini et al. 2010) were taken into account as a key foundation for theory development. Building on the special characteristics of PSFs and the service solution they offer to customers, the theory developed here revolves around people management processes and knowledge management processes. These processes are argued to provide appropriate inputs to develop superior service solution and maintain brand equity.

Focusing on people management processes, the theory illustrates the connection between people inside and outside the PSF and their contribution in providing superior service solution. To build a beneficial connection between engaged people to provide superior service solution brand values was used as the glue that bring these people together and enhance superiority of the service solution. Focusing on knowledge management processes the argument raised here is that PSF should expand their knowledge pool and develop broad knowledge in both technical and customer domains. As the broad knowledge is more difficult to understand and is associated with high risk, the PSFs are supposed to use knowledge assimilation to take the most benefit of customer knowledge and technical knowledge to provide superior service solutions. The consequences of providing a superior service solution drives brand equity in two forms - customer-based brand equity and firm-based brand equity.

While researchers agree about the importance of brand equity in industrial markets (Bendixen et al., 2004), Leek and Christodoulides (2012) contend research so far has produced mixed results regarding the composition and drivers of industrial brand equity. Picking up on this point, this study developed a theory of PSF and argues that a

superior service solution which is provided based on the well-developed brand oriented people processes and rich knowledge pool are in a better position to establish strong brand equity in B2B PSFs markets. The methodology developed in Chapter Five introduces approaches that facilitate testing the developed theory.

Chapter Five

Research Design

If you do not give serious attention to the design of a research project you are likely to end up with a mess.

Robson, 2011, p.5

5.1. ***Introduction***

Research methods reflect the shared beliefs within a community of researchers about which questions are the most meaningful and which procedures are the most suitable for answering those research questions (Davis 2013; Kuhn 1970). In the marketing and management domain, the aim of research is to develop the body of knowledge by explaining, predicting, and understanding human behaviour related to marketing and management phenomena and answer research question (Neuman 2011). To address research questions, a precise research methodology should be designed, and in this sense Robson (2011) believes "If you don't give serious attention to the design of a research project you are likely to end up with a mess" (p. 5).

Chapters One to Four covered the first stages of research design, including the initial planning stage. Chapter One identified the research problem and research question, Chapter Two and Three identified a range of research issues, and theory was developed in Chapter Four. Chapter Five describes the methodology used to provide data to investigate the research questions and problem identified in Chapter One. An overview of the research methodology was provided in Chapter One, Section 1.5, and this chapter aims to build on that overview and provide assurance that appropriate procedures were followed. This chapter is developed to show that appropriate steps taken to design and implement the study, guaranteeing the success of research (Robson 2011).

5.2. ***Process of research***

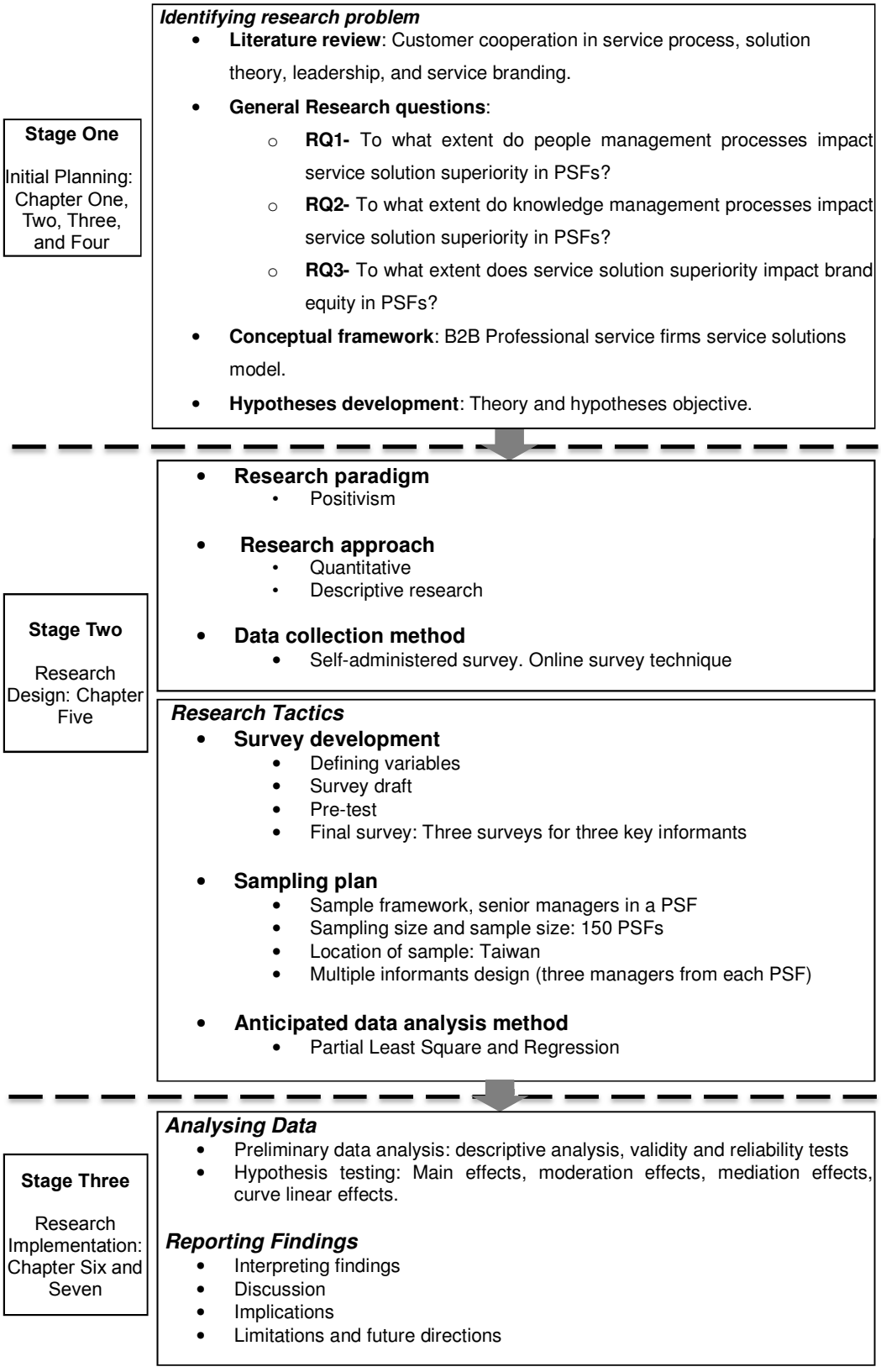
The research design process outlined here is developed based on an adapted model of the research process proposed by Neuman (2011) and Aaker et al. (2005). The research process as shown in Figure 5.1 has three stages identified as 1) initiation of research, 2) the research design, and 3) research implementation. As shown in Figure 5.1, the first stage, research initiation, relates to identifying the research problem and proposing a research question (Neuman 2011; Aaker et al. 2005). The first stage aims to identify the research problem and research objectives, the literature review, and

finally develop the research model and articulate research hypotheses. Based on the related paradigm and methodology the research design is developed to address research questions with stage One discussing this in Section 5.3.

The second stage in the research process, the research design, is a detailed blueprint used to guide the research towards its objectives (Neuman 2011; Malhotra 2006; Aaker et al. 2005). Designing the study requires making decisions about the research approach, data collection, survey development, and selection of the sample (Neuman 2011; Aaker et al. 2005). Research design starts with identifying the paradigm that the research question fits within. A paradigm refers to a basic orientation to theory and research, and includes basic assumptions about the question to be answered and the research techniques to be used (Neuman 2011). The research design in Figure 5.1 is detailed in Section 5.4 and explains the research approach applied in this research. In this study, quantitative research underpinned by positivism is adopted. The study deploys a multiple informant method to collect data from senior managers of PSFs in Taiwan via an online survey.

The third stage of the research process is the implementation of the research, which includes data analysis and reporting findings. Data analysis encompasses the preliminary analysis (descriptive analysis, reliability and validity tests) and primary analysis, including hypothesis testing (main effects, mediation effects, moderation effects, curve linear modelling). The third stage of research process shown in Figure 5.1 is discussed in Section 5.5.

Figure 5.1
The research design process



Sources: Adopted from Aaker et al. 2005 and Neuman 2011

5.3. ***Stage One: The preliminary planning stage***

As indicated in Figure 5.1, Stage One in the research process encompasses two sub-sections, which are related to the problem identification, developing research questions, and hypotheses. The research questions, presented in Chapter One, Section 1.2, are designed to address a specific gap in the literature. Addressing these research questions, consequently, contributes to advance knowledge in the PSFs and solution literature, outlined in Chapter One. Chapters Two and Three reviewed literature in the domain of the research problem and constructs underpinning the research questions to provide a foundation to develop the research model and arguments. Chapter Four focused largely on the development of theoretical arguments, the research model, and hypotheses. Therefore, the initial planning of the research design has been completed through Chapters One to Four. The following Section scrutinises how these initial actions were developed in respect of the research methodology.

5.3.1. ***Problem identification and the development of research question***

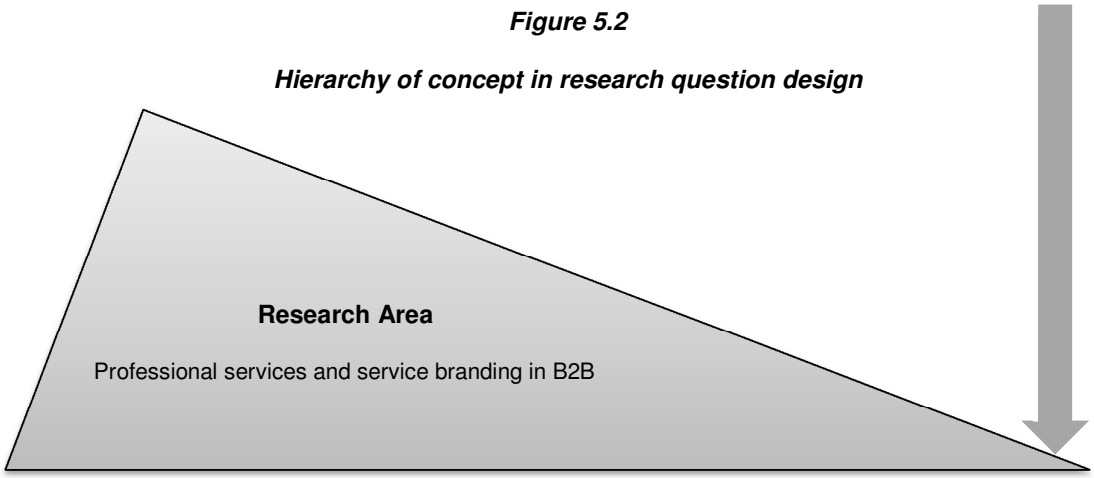
Problem definition is a creative act that results from combining data and judgment (Aaker et al. 2006). Information from the literature and past research should be gathered and critically analysed to identify the problem in a specific domain (Anderson and Taylor 2007; Punch 2005). Based on the critical analysis of the information gathered, a clear statement of concern should be stated as a research problem (Cavana 2001). The research problem should be designed in a fashion that ensures it turns into a researchable question(s) (Houser 2009). Punch (2005) suggests a model of "hierarchy of concept" to reach to the research question(s). In the model advanced by Punch (2005) there are four sections in the hierarchy identified leading to the development of a research question(s): area, topic, general research question and specific research question. In this model, the specificity of research increases, while moving up the hierarchy.

This research adapts the approach proposed by Punch (2005) to develop the research questions. Figure 5.2 illustrates the hierarchy of research questions for this research following the model proposed by Punch (2005). The top first section of the hierarchy in Figure 5.2 is called research area section, which was identified in Chapter One, Section 1.2 and which rests in the B2B PSFs and service branding domains. The second section in the hierarchy in Figure 5.2 is called research topic section, which are service solution and CCSP. The third section from top in Figure 5.2, is called general research question section and in this section three broad research questions are identified, which were presented in Chapter One, Section 1.2. The fourth section (the

bottom) of Figure 5.2 is called specific research question section and nine sub-research questions that are more specific to address the three broad research questions are shown in this section. The nine specific research questions developed in Chapter One, Section 1.2 are presented in Figure 5.2 in the specific research question layer.

Figure 5.2

Hierarchy of concept in research question design



Research Topic

Service solutions and customer cooperation in service provision process in B2B context

General Research Question

RQ1- *To what extent do people management processes impact service solution superiority in PSFs?*
RQ2- *To what extent do knowledge management processes impact service solution superiority in PSFs?*
RQ3- *To what extent does service solution superiority impact brand equity in PSFs?*

Specific Research Question

RQ1a. *To what extent does brand specific transformational leadership influence employee brand building behaviour in PSFs?*
RQ1b. *To what extent does employee brand building behaviour influence CCSP in the PSFs?*
RQ1c. *To what extent does CCSP improve service solution superiority in the PSFs?*

RQ2a. *To what extent do the levels of broad and deep technical knowledge influence service solution superiority in PSFs?*
RQ2b. *To what extent does the broad and deep customer knowledge influence CCSP in PSFs?*
RQ2c. *To what extent does knowledge assimilation affect the strength of the relationship between technical knowledge and service solution superiority in PSFs?*
RQ2d. *To what extent does knowledge assimilation affect the strength of the relationship between customer knowledge and CCSP in PSFs*

RQ3a. *To what extent does service solution superiority contribute to the development of customer based brand equity in PSFs?*
RQ3b. *To what extent does service solution superiority contribute to the development of firm based brand equity in PSFs?*

Sources: Adapted from Punch (2005)

5.3.2. Conceptual model development

The research framework illustrates the pre-assumed and logical relationships among several constructs that have been identified as important to the research problem (Cavana et al. 2001). The research framework connects the concepts drawn from various theories, or from previous research, or from the researcher's own experience (Seibold 2002). Further, the research framework facilitates answering the why and/or how behind the theory (Crittenden et al. 2011) and is the motivation for the formulation of the theory (Seibold 2002). As noted in Chapter Four, Section 4.3, the "B2B Professional service firms service solutions model" represents the research framework for this study. The theories related to solution, service branding, leadership, and employees brand building were chosen as the underlying theoretical foundation in developing the "B2B Professional service firms service solutions model". The model acted as a map and outlines possible courses of action for PSFs to provide superior service solutions and achieve higher levels of customer-based brand equity, firm based brand equity, cooperating with customers, and providing superior service solutions. The "B2B Professional service firms service solutions model" was developed to articulate the linkages and interrelationships between the PSF's technical and customer knowledge, service solution superiority, CCSP, brand specific leadership styles, employee brand building behaviours, and specific performance outcomes, such as customer based brand equity and firm based brand equity. Seven hypotheses were developed in Chapter Four to illustrate the relationships between constructs in the "B2B Professional service firms service solutions model" and to address the specified research questions.

5.4. Stage Two: Research design stage

A research design refers to a master plan to set up the criteria for selection of the sample, how to measure constructs, and the type of techniques to employ to collect and analyse data (Neuman 2011; Aaker et al. 2005). Figure 5.1 illustrates that Stage 2 in the research design framework includes two steps: identifying research paradigm and research tactics. The research paradigm step involves identifying the research approach and data collection method. The research tactic step encompasses the development of measures of constructs, the sampling plan, and the anticipated data analysis. Section 5.4.1 discusses the research paradigm and Section 5.4.2 discusses research tactics.

5.4.1. ***Research paradigm***

This research proposes specific relationships between technical knowledge, customer knowledge, and the branding activities of PSFs on the capacity to cooperate with customers and facilitate service solution provision. Further, it is expected that a service solution, which is superior in terms of quality and innovativeness, maximises customer based brand equity and firm based brand equity. This research theorises and examines the relationships between constructs of interest (technical knowledge, customer knowledge, transformational leadership, employee brand building behaviours, CCSP, service solution, customer based brand equity and firm based brand equity). As such, the positivism paradigm was adopted to design the research, because positivism aims to predict events via testing predefined hypothesis (Neuman 2011; Cavana et al. 2001). Given the exploratory nature of the research questions and predefined hypotheses, this research adopted the positivism paradigm to design the research. In the positivism paradigm, the appropriate methods to test and analyse hypothesis are quantitative approaches (Cavana et al. 2001). In positivism, data are obtained by interviewing individuals through surveys and then statistical methods are used to analyse the data (Cavana et al. 2001). Sections 5.4.1.1 and 5.4.1.2 discuss the specific research approach and data collection method used in this research.

5.4.1.1. ***The research approach: Quantitative research***

As discussed in Section 5.4.1, in this research, quantitative research was employed within the positivism paradigm. Quantitative research seeks to quantify the data and typically applies some form of statistical analysis to test the theory (Malhotra et al. 2006). Thus, the emphasis is on the precisely defining and measuring variables to test hypotheses. Quantitative research is an appropriate research methodology to test the predefined hypotheses, which are based on theory (Neuman 2012). While some believe there are two categories in quantitative research known as descriptive research and experimental research (Malhotra et al. 2006; Aaker et al. 2005), others believe there are three categories known as exploratory, descriptive, and explanatory (Neumann 2012). Descriptive research is designed to describe some aspects of the environment when the hypotheses are tentative and speculative in nature (Neumann 2012). Descriptive research aims to answer the questions of who, what, where, when, and how. Descriptive research does not manipulate objects to observe cause and effect. It describes the relationships between variables (Malhotra et al. 2006; Aaker et al. 2005). Experimental research is used when it is necessary to establish causal relationship between variables and show that one variable causes or determines the values of the other variable (Aaker

et al. 2005). It involves manipulation of variables in a controlled environment (Malhotra et al. 2006). Neumann (2012) believes explanatory research is about well-recognised issues and it tends to explain why things are the way they are. In particular, an exploratory research is about examining a new topic in order to learn about it.

Given that the hypotheses developed to predict the relationships in relation to the constructs in the research model presented in Chapter Four aim to describe the relationships between the constructs outlined in the "B2B Professional service firms service solutions model", a quantitative research methodology via descriptive research best describes this study.

5.4.1.2. Data collection method

Two methods of data collection are identified for descriptive research methods, survey-based and observation-based methods (Malhotra 2006). The most commonly used approach to collect data in marketing research is survey-based methods (Aaker et al. 2005). Survey-based data collection refers to obtaining information via asking structured questions from respondents (Malhotra 2006; Blaxter 2003). This research adopts structured surveys for several reasons. First, surveys can collect a great deal of data about an individual or phenomenon (Aaker et al. 2005; Cavana et al. 2001). Second, data collection via surveys is flexible as there are different approaches to collect data (e.g., electronically, drop and collect, mail and the like) (Malhotra 2006). Third, surveys are relatively simple to administer and simple to codify, analyse and interpret (Robson 2011).

The survey method can be administrated using a range of approaches, including personal interviews, telephone interviews, mail interviews, fax, online interview, and combinations of different types of administration (Aaker et al. 2005). The strengths and weaknesses of the different types of survey methods are shown in Table 5.1. Following Morhart et al. (2009), this research adopts an online survey as the method of administration, because it offers many benefits that support the efficient and effective data gathering (see also Ngo and O'Cass 2007). The online method of data collection has been used in marketing research because of its relative low cost and fast response rates (Ngo and O'Cass 2007; Ilieva et al. 2002; Cavana et al. 2001). It allows entry of data directly into an electronic storage format (database), which saves time and decreases errors that can occur in manual data entry. Further, it can decrease the missing data via defining a function for the system and not allowing the respondent to move to other questions or submit the survey until all questions are answered (Aaker et al. 2005). Moreover, as the target sample of this research was senior managers of

professional service firms, who are busy, the web-based survey allows them to answer the questions in an appropriate time and when it suits them (see, Sweeney et al. 2011). More importantly, given the budget for the study, the online method was deemed the most appropriate, as well as cost effective compared to personal interview or telephone interview.

Table 5.1
Summary of survey methods

Methods	Strength	Weakness
Personal interviews-interviewer complete questionnaire	. Can use persuasion to enlist cooperation . Complex instructions and patterns possible . No missing data . Observation and use of visual aids possible . Rapport and confidence building possible . Maybe able to conduct longer interviews	. Costliest and the most time consuming method . Requires rained interviewers . Restriction on where interviews can be conducted
Personal interviews-respondent complete questionnaire	. Asking questions with long response categories is facilitated . Respondent does not have to share answers with an interviewer . Can use persuasion to enlist cooperation . Observation and use of visual aids possible . Rapport and confidence-building possible . Interviewer can explain study	. Possibility of missing data . Trained staff required . Careful questionnaire design and presentation are needed . Respondents need good reading and writing skills
Telephone interview	. Lower cost compare to Personal interviews . Better access to certain populations than personal interviewing . Shorter time required for data collection . Advantages of interviewer completion and ability to persuade . Easier supervision of field staff when using a centralised location . Better response rates than mail	. Samples due to lack of phone, screening of calls and unlisted numbers . Non-response higher than personal interview . Visual aids and observation not possible . Trained interviewers required . Less appropriate for personal sensitive questions
Mail survey	. Comparatively inexpensive method . Minimal staff and facilities needed . Can reach widely dispersed samples . Respondents have time to give considered responses	. No interviewer presence to encourage participation . Visual aids and observation not possible . Requires a good mailing list . Longer time required to obtain data
Online survey email	. Fast and comparatively inexpensive . Minimal staff and facilities required . Can reach widely dispersed samples . Respondents have time to give considered responses	. Requires email list . Formatting and presentation problem . No interviewer presence to encourage participation
Online survey web-based	. Fast and comparatively inexpensive . Minimal staff and facilities required . Can reach widely dispersed samples	. Respondent must be directed to website either by email, mail, or some other method
Online survey web-based	. Respondents have time to give considered responses . Minimises errors in data transcription as data is directly entered into storage	. Technical expertise required to develop questionnaire . No interviewer presence to encourage participation
Fax survey	. Relatively low cost . Minimal staff and facilities required . Can reach widely dispersed samples . Respondents have time to give considered responses . Fast	. Limited to populations with fax machines; that is, organisations . Loss of anonymity . No interviewer presence to encourage participation

Source: Adopted from Aaker et al. 2005

Table 5.1, shows the different types of data collection method. Analysis of this table provides more support for the chosen data collection method. As illustrated in Table 5.1, all types of personal interviews (face to face and telephone interviews) are the most expensive, which makes them more difficult to adopt in a study such as being undertaken here. As shown in Table 5.1, fax survey is relatively cheap, but the privacy of respondents is not high in this method of data collection. Many respondents may wish to remain unknown, but this method of data collection does not consider the confidentiality of the respondents. Thus, this method of data collection was not deemed suitable to apply in this study.

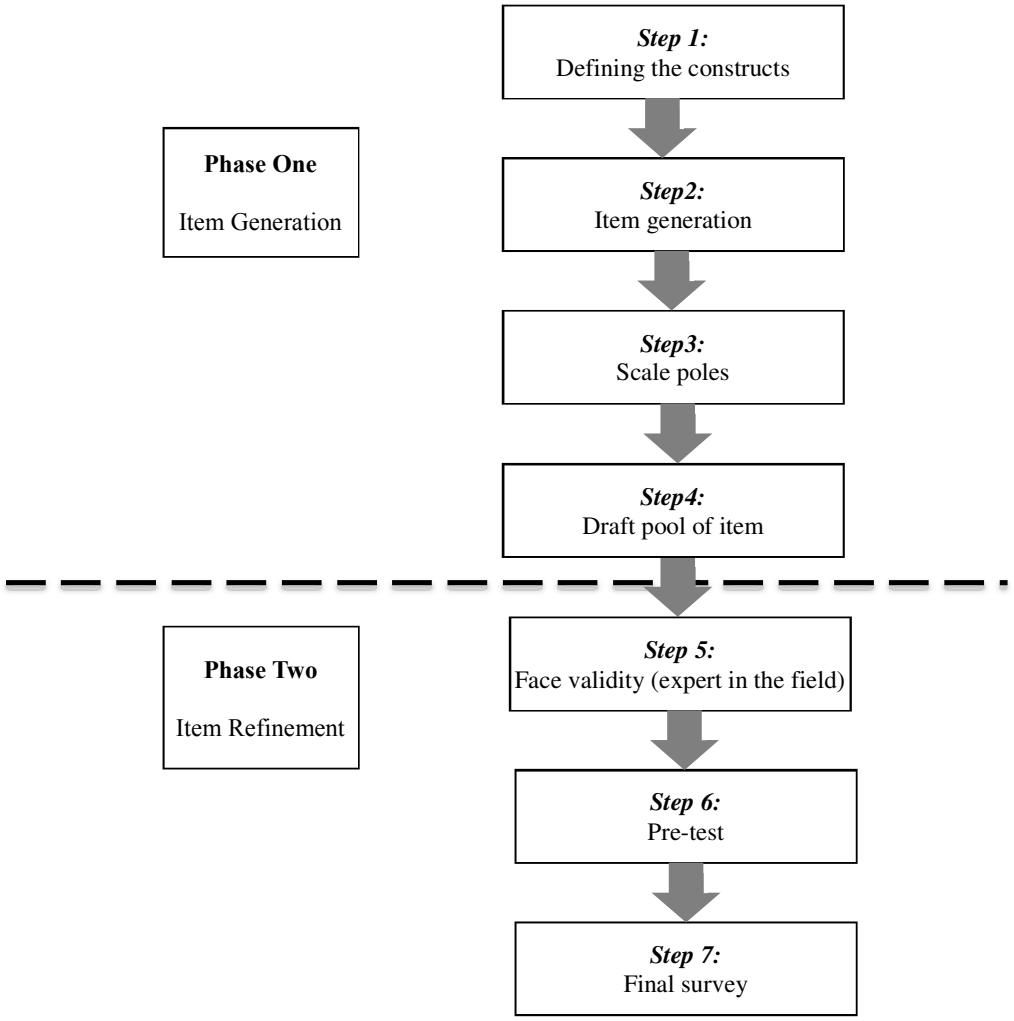
5.4.2. The research tactics

Selecting the research tactic is the next step in research design. As shown in Figure 5.1, Stage Two in the research design framework encompasses the measurement development, sampling plan, and anticipated data analysis method. Measurement development is about formulating precise written questions for those who we are interested in their opinions (Blaxter et al. 2003). The sampling plan focuses on selecting a representative sample of respondents to avoid any bias in data collection (Robson 2011). Data analysis involves turning the data gathered into meaningful information (Aaker et al. 2005). These steps are discussed in Sections 5.4.2.1, 5.4.2.2, and 5.4.2.3, respectively.

5.4.2.1. Measurement development

The purpose of measurement design is to help answer the research questions through operationalising each construct (Neuman 2011). Each variable is operationalised via designing questions that encompass the dimensions of a construct (Punch 2005; Churchill 1979). Thus, constructs should be defined before operationalising them to capture the appropriate item(s) to tap the definition of the construct.

Figure 5.3
The measurement development procedure



Sources: Adopted from Burns et al. 2008; Punch 2005; and *Churchill 1979*

As shown in Figure 5.3, measurement development includes two main phases, item generation and item refinement (or reduction) (Burne 2008; Churchill 1979). The purpose of the item generation phase is to consider all potential items to include in the questionnaire (Burns et al. 2008). Items can be generated through the literature review, in-depth interviews of probable sample (e.g., managers, employees, customers, etc.), focus-groups, opinion of academic experts, or a combination of these methods (Burns et al. 2008; Punch 2005). The purpose of item refinement phase is limiting the potentially large number of relevant questions within domains to a manageable number without eliminating entire domains or important aspect of the domain (Burns et al. 2008; Punch 2005). Item refinement is an iterative process that can be achieved by asking the experts (e.g., managers, academics, etc.) their opinion about the selected items

(Morgan et al. 2012; Punch 2005). Experts are asked to evaluate the relative merit of items by ranking (e.g., ordinal scales) or rating (e.g., Likert scales). As shown in Figure 5.3, the alternative approach to reduce the number of items is to collect data from pilot testing and employ statistical methods that examine the relation between and among the items within domains (Burns et al. 2008). Punch (2005) proposes several steps that encompass all stages in these two phases. The stages proposed by Punch (2005) are used here and combined with the steps introduced by Burns et al. (2008) and Churchill (1979). Figure 5.3 illustrates the flowchart of measurement design and development used in this study. As shown in Figure 5.3, the first phase involves with defining the construct, followed by item generation, scaling (scale poles, e.g., Likert), formatting the survey, and testing for readability and comprehensibility of the items. Phase two involves examination of face validity, which is achieved by asking experts in the field to assess items, followed by pre-test and final survey.

5.4.2.1.1. ***Phase one: Item generation***

Item generation involves a number of steps as shown in Figure 5.3. The steps included in the item generation phase comprise defining the constructs, generating items, making decision on scale poles, formatting the survey, testing the readability and comprehensibility, and refinement and finalising draft pool of items. The steps included in the item generation phase are discussed in Sections 5.4.2.1.1.1 to 5.4.2.1.1.4.

5.4.2.1.1.1. ***Step 1: Defining constructs***

The first step in measurement development is defining constructs and variables. The definitions of constructs should be testable (Summers 2001) and contribute to answering the research questions (Punch 2005; Cavana 2001). An acceptable definition should (1) specify the construct's conceptual theme; (2) use clear and understandable terms without any ambiguity; (3) be clearly distinguishable from related constructs; (4) specify the relations between the first order construct and the second order construct, when the construct is conceptualised as being multidimensional; and (5) not define the construct in terms of its antecedents or consequences (McKenzie 2003; Summers 2001).

Construct definitions are an important part of survey development, because definitions identify the domain of constructs and what should be measured (McKenzie 2003; Summers 2001). Further, constructs are the building blocks of theory and without well-developed conceptual definitions for the constructs, it is impossible to develop a coherent theory (Summers 2001). Moreover, the definition of a construct shows how the definition is related to its measurement. Definitions of all constructs outlined in the

research model developed in this research are presented in Table 5.1 and which were originally defined in Chapter Four, Sections 4.2.1 to 4.2.4.

Table 5.2

Definitions of constructs

Construct	Definition
Technical knowledge	is the expert knowledge necessary to design and develop a service solution (adapted from Prabhu et al. 2005; Grant 1996).
Deep technical knowledge	is the degree of detail and complexity of a PSF's expert knowledge of the technical and expertise field of operation (adapted from Carlo et al. 2013; Prabhu et al. 2005).
Broad technical knowledge	is the degree of heterogeneity and dissimilarity of a PSF's expert knowledge of the technical field of operation (adapted from Carlo et al. 2013; Prabhu et al. 2005).
Customer knowledge	to the knowledge held by the PSF about customer needs (adapted from Day 1994)
Deep customer knowledge	is the degree of detail and complexity of customer knowledge held by the PSF (Arnold et al. 2010).
Broad customer knowledge	is the degree of heterogeneity and dissimilarity of customer knowledge held by the PSF (Arnold et al. 2010).
Knowledge assimilation	is the process of analysing, interpreting, and spreading the knowledge in the PSF (Zahra and George 2002).
Service solution	is a customised service to meet customer's non-standardised needs (built on the work by Maister 1993 and Evanschitzky et al. 2011).
Service solution superiority	is the level of quality and innovativeness of customised service solution provided to customers to meet customer's non-standardised needs (built on the work of Hogan et al. 2011).
CCSP	is the extent a PSF works with customers during the design, development, and delivery of service solutions (adapted from Ngo and O'Cass 2013; Agarwal and Selen 2009).
Employee brand building behaviours	is the employees' contribution to an organisation's customer-oriented branding efforts consists of in role and extra role brand building behaviours(Morhart et al. 2009).
In-role brand-building behaviour	refers to frontline employees' meeting the standards prescribed by their organisational roles as brand representatives (e.g., written instruction on codices, and rules or unwritten) (Morhart et al. 2009).
Extra-role brand-building behaviour	refers to employee actions that go beyond the prescribed roles for the good of the corporate brand and are discretionary (Morhart et al. 2009).
Brand specific transformational leadership	is a leader's approach to motivate followers to act on behalf of the corporate brand by appealing to their values and personal convictions (Morhart et al. 2009).

Continue: Table 5.2

Definitions of constructs

Construct	Definition
Customer-based brand equity	is the degree that customers are committed to the PSF (Adapted from Rust et al. 2004).
Customer commitment	is the enduring desire of a customer to maintain and develop a supplier relationship (Walter and Ritter 2003).
Firm based brand equity	the firm's financial performance in the form of market effectiveness and profitability (Christodoulides and de Chernatony 2010; Zaichkowsky et al. 2010; Simon and Sullivan 1993).
Market effectiveness	is defined as the degree to which the PSF's firms' market-based goals had been achieved (Vorhies and Morgan 2005).
Profitability	is the degree to which the PSF achieves financial goals (Vorhies and Morgan 2005).
Environmental turbulence	is the degree to which managers are unable to accurately predict and completely understand the market environment as a result of the fast pace of change (Atuahene-Gima and Wei 2011).
Firm size	is the logarithm of the number of employees was used to prevent skewness (De Luca and Atuahene-Gima 2007).

5.4.2.1.1.2. Step 2: Generation of items

The next step after providing conceptual definitions for all constructs was generating or selecting items/questions that capture the definitions of constructs. Generating questions or items occurs through the operationalisation of the constructs. Hinkin (1995) suggests two approaches to generate items; deductive and inductive. Deductive item generation refers to creating an initial set of items using the related literature. Inductive item generation refers to asking people questions (e.g., about what is happening in their organisation, or how they feel about their relationship with their customers) and then creating the pool of items according to the answers provided by respondents. Further, Churchill (1979) and Mumfred et al. (1996) suggest using sources of existing measurement in the literature to create a pool of items. Hogan et al. (2011) suggest a combination method including inductive accompanied by an expert panel constituted by academics and practitioners to generate items.

To design the questionnaires for the present study the deductive approach proposed by Hinkin (1995), Churchill (1979), Mumfred et al. (1996), and Hogan et al. (2011) was adopted. If measures were available in the literature, a pool of available measures was created (Hogan et al. 2011; Hinkin 1995; Churchill 1979; Mumfred et al. 1996). This process was followed by the use of an expert panel technique proposed by Hogan et al. (2011). Following the recommendations suggested by these researchers

(Hinkin 1995; Churchill 1979; Mumfred et al. 1996), an initial item pool was derived from the existing measures found in the literature. Following De Luca and Atuahene-Gima (2007), Arnold et al. (2011), and Zhou and Li (2012) three different surveys for three levels of senior managers as key informants were designed[4].

Deep and broad technical knowledge. New measures were developed for deep and broad technical knowledge, because no research was found that measures deep and broad technical knowledge. To measure deep and broad technical knowledge Prabhu et al. (2005) use number of patents and subclasses of patents. However, this method of measuring deep and broad technical knowledge could not be used in services, as they generally do not have patents. Zhou and Li (2012) developed a measure of market knowledge, however they only had one item on deep and broad technical knowledge respectively in the measure of market knowledge. Thus, developing a measure of deep and broad technical knowledge was deemed appropriate.

To develop measures that fit the definition of deep and broad technical knowledge developed in Chapter Four, Section 4.2.3.1, a set of items was developed based on the works of Boh et al. (2014), Zhou and Li (2012), and Grant (1996). As shown in Table 5.1, deep technical knowledge is the degree of depth and complexity of a PSF's expert knowledge of the technical and specialised field it operates within (adapted from Prabhu et al. 2005). Broad technical knowledge is the degree of broad and dissimilarity of a PSF's expert knowledge of the technical and specialised field (adapted from Prabhu et al. 2005). A pool of 7-items was developed to measure both deep and broad technical knowledge, where 4- items were developed for deep and three for broad technical knowledge. To measure deep technical knowledge, the focus was on the specific technical knowledge the PSF should capture to provide the actual service solution. In broad technical knowledge, the focus was on the dissimilar technical knowledge the PSF should capture to provide the actual service solution. Example items are as follows[5]:

Broad technical knowledge **Our firm`s…** service development expertise consists of knowledge from a variety of backgrounds.
Deep technical knowledge: **Our firm, has…** gathered detailed technical knowledge about our industry.

Deep and broad customer knowledge. Building on the literature discussed in Chapter Four, Section 4.2.3 focusing on customer knowledge and focusing on conceptualisation

[4] The full information about the sample and respondents is discussed in full detail in Section 5.4.2.2
[5] The list of all items is presented in Appendix II,III,IV.

of deep customer knowledge as the amount of specific knowledge of customer obtained by the PSF and broad customer knowledge as the diversity of customer knowledge obtained by the PSF was measured using an 8-item measure. This measure was adapted from the work of Arnold et al (2010) and De Luca and Atuahene-Gima (2007) to capture the extent that a PSF acquires specific customer knowledge and dissimilar customer knowledge. Four items were developed to capture the dimensions of deep and 4 for broad customer knowledge. Example items are as follows:

Broad customer knowledge:
Our firm`s…
customer knowledge is extensive (broad, wide-ranging).
Deep customer knowledge:
Our firm, has…
acquired customer knowledge with different purchase profiles and purchase behaviour patterns.
gathered detailed knowledge about the appropriate channels to reach customers.

Knowledge assimilation. Chapter Four, Section 4.2.3.3, discussed research related to knowledge assimilation and conceptualised it as the process of analysing, interpreting, and spreading the knowledge in the firm that was measured via six items. This 6-item measure was adopted from De Luca and Atuahene-Gima (2007), capturing the ability of PSFs to analyse, interpret, and spread the knowledge through formal meetings and analysis sessions. Example items are as follows:

Our firm, uses…
regular formal reports and memos that summarise learning.
experts and consultants to synthesise knowledge.

Service solution superiority. The literature review undertaken in Chapter Three, Section 3.4, shows that the majority of the research on service solutions is based on case study or interview protocols. Therefore, no survey-based measures were available to measure the superiority of service solutions and therefore developing a measure was a necessity. Based on the definition of service solution and service solution superiority provided in Chapter Four, items were developed to measure the construct. As shown in Table 5.2, a service solution is defined as a customised intangible service to meet customer's non-standardised needs. In this sense, building on the work of Hogan et al. (2011), service solution superiority refers to the degree of quality and innovativeness of a customised service solution provided to customers to meet customer's non-standardised needs. To develop the new measure, literature related to solution, innovation, service quality, and value offering were applied to generate a pool of items. Based on the literature, representative items that tap the innovativeness, quality, and

customisation dimensions of service solutions and meeting customers' non-standard needs were identified. Finally, 10-items based on the work of Tuli et al. (2007), O'Cass and Ngo (2011), Hogan et al. (2011), and Aarikka-Stenroos and Jaakkola (2012) was developed to measure the extent that a service solution offered to customers are customised and that matches customer preferences and non-standard needs. Example items are as follows:

In our firm, we…
ensure customers' personal preferences are satisfied.
delivering quality services.
seek out novel ways to tackle problems.

CCSP. Chapter Two, Section 2.4.9, identified that measures of CCSP from the firms' perspective are limited in the literature. Thus, developing a new measure that captures different aspects of CCSP was deemed necessary. Building on the work of O'Cass and Ngo (2011), Agarwal and Selen (2009), and Menon et al. (2005) a 12-item measure was developed. To measure CCSP, this study focuses on the extent the PSF works with the customer, makes decisions with customer on technical issues and goals, works with customers to identify opportunities, and work with customers to align offerings to their needs. Example items are as follows:

In our firm, we …
jointly decide with customers on the goals and objectives for our relationship.
jointly solve technical problems with customers.

Brand specific transformational leadership. Building on the literature discussed in Chapter Three, Section 3.8.1.1, and focusing on the conceptualisation of brand specific transformational leadership as a leader's approach to motivate followers to act on behalf of the brand by appealing to their values and personal convictions a 20-item measure was adopted. This scale was adopted from the work of Morhart et al. (2009) capturing the four dimensions of transformational leadership encompassing inspirational motivation (articulating an appealing and/or evocative vision), intellectual stimulation (promoting creativity and innovation), idealised influence (charismatic role modelling), and individualised consideration (coaching and mentoring). Example items are as follows:

In our firm, our CEO…
re-examines critical assumptions of our brand promise to question whether they are appropriate.
treats me as an individual rather than just one of many members of our company brand.
considers me as having different needs, abilities, and aspirations from other members of our company brand.

Employee brand building behaviour. The literature review on employee's brand building behaviour discussed in Chapter Three, Section 3.8.1.2, provided a foundation to develop a measure of employee brand building behaviour. A number of reasons guided the decision to develop a new measure. For example, King and Grace (2012) only focus on extra role behaviours and the measure provided by Morhart et al. (2012) focuses on in-role brand building behaviour. Therefore, the literature review were undertaken to identify items that measures employee brand building behaviour.

To develop the measure of employee brand building behaviour the work of Vey and Campbell (2009), Morhart et al. (2009), and King and Grace (2012) was used. As shown in Table 5.1, employee brand building behaviour is defined as the employees' contribution to an organisation's customer-oriented branding efforts, encompassing both in-role and extra-role brand building behaviours. In-role brand-building behaviour refers to the employees' meeting the standards prescribed by their organisational roles as brand representatives (e.g., written instruction on codices, and rules or unwritten) (Morhart et al. 2009). Extra-role brand-building behaviour refers to the employees' actions that go beyond the prescribed roles for the good of the brand and are discretionary (Morhart et al. 2009). An 8-item measure was developed to measure both in-role and extra-role brand-building behaviour, with 4 items measuring in-role and 4 measuring extra-role brand-building behaviour. To measure in-role behaviour the focus was on tasks that are specified in job description and in extra role the focus was on those tasks that are not specified in job description. Example items are as follows:

In our firm our employees….
tell their supervisor about ways to strengthen our brand image.
adhere to our standards for brand-congruent behaviour
adhere to our standards of behaviour that are consistent with our brand image.

Customer based brand equity. Based on the discussion in Chapter Three, Section 3.6, customer-based brand equity is conceptualised as the degree that customers are committed to the PSF. Customer commitment is defined as the enduring desire of a customer to maintain and develop a relationship with the supplier firm (Walter and Ritter 2003) and was measured using a 5-item measure. This measure was adopted from the work of Walter and Ritter (2003) capturing the customers' enduring desire to maintain and develop a profitable supplier relationship from the PSF's perspective. Example items are as follows:

Our interpretation of our customers' interactions with us and our understanding of our customers indicate that…
their current collaboration with us is a part of a long term relationship.
they are willing to invest time and money to develop their relationship with us.

M*arket effectiveness*. Firm based brand equity was discussed in Chapter Three, Section 3.6, and conceptualised in the form of market effectiveness and profitability. Market effectiveness was conceptualised as the degree to which the firms' market-based goals had been achieved and was measured via 4-items. This measure was adopted from Vorhies and Morgan (2005), capturing growth in market share, growth in sales, acquiring new customers and retaining existing customers. Example items are as follows:

In thinking about our objectives, we have achieved our…
objectives in relation to market share growth relative to competitors…
objectives in relation to increasing sales to existing customers…

Profitability. The second part of firm based brand equity is profitability. Building on the literature on firm performance discussed in Chapter Three, Section 3.6 and focusing on the conceptualisation of firm performance in the form of profitability as the degree to which the firms' profitability goals had been achieved a 4-item measure was developed. This measure was adopted from Vorhies and Morgan (2005), capturing the objectives of profitability, financial performance, sales performance, and sales objectives. Example items are as follows:

In thinking about our objectives, we have achieved our…
objectives in relation to enhancing firm profitability…
objectives in relation to overall quality of service provided by our organisation to customers is excellent…

Control variables:

Environmental turbulence. Environmental turbulence was considered as a control variable and is seen as the degree to which managers are able to accurately predict and completely understand the market environment as a result of the pace of change (Atuahene-Gima and Wei 2011). This 6-item measure was adopted from the work Atuahene-Gima and Wei (2011) and captures the degree of dynamism of the technology, the customer and competitor environments. Example items are as follows.

During past two years, in our business environment….
the technological environment was very complex….
predicting the actions of competitors was extremely difficult….

Firm size and service sector. Firm size and service sector were measured as two other control variables. Firm size refers to the logarithm of the number of employees was used to prevent skewness (De Luca and Atuahene-Gima 2007). Service sector is

the specific sector the respondent professional service firm operates within (e.g., engineering, advertising).

5.4.2.1.1.3. Step 3: Scale poles

Malhotra et al. (2006) and Aaker (2005) suggest that it is necessary to identify scale poles for the measures after creating the item pool. Scaling is a method of measurement (Malhotra et al. 2006) and, in this sense, measurement means assigning numbers or other symbols to characteristics of the object according to certain pre-specified rules (Malhotra et al. 2006). To measure a construct, numbers should be assigned to the items that operationalise the construct (Aaker et al. 2005). A scale is a tool or mechanism by which individuals are distinguished on how they differ from one another on the variables of interest to the study (Cavana et al. 2001).

A wide range of scaling techniques, including the Semantic Differential Scale and Likert Scale exists in social science research. Likert scales generally are the most commonly used scales in the marketing research for several reasons (Aaker et al. 2005). In particular, Likert scales are seen as easy to develop (Robson 2011) and easy for respondents to use (Malhotra et al. 2006). The Likert scale is designed to measure how strongly subjects agree or disagree with statements across five-points or seven-points scale (Malhotra et al. 2006).

Based on the above discussion, Likert scaling is identified as the most appropriate scale to measure the constructs. Further, all measures adopted from previous research used Likert scales, supporting the view that the Likert scale is the most suitable scale (e.g., Arnold et al. 2010; Morhart et al. 2009; Agarwal and Selen 2009, Jacob 2006; Menon et al. 2005). A seven point Likert scale has been considered as the most appropriate to effectively capture the direction and intensity of response (Ryan and Gillen 1999). Further, the Likert scale has been widely used in marketing research (see King and Grace 2012; Ngo and O'Cass 2013; O'Cass and Ngo, 2011; Weerawardena et al 2006; Morhart et al. 2009; Agarwal and Selen 2009, Jacob 2006; Menon et al. 2005; Vorhies and Morgan 2005; Walter and Ritter 2003).

Following the recommendations of Podsakoff et al. (2003), different scales poles were used to reduce response biases, including halo effects that can result in common method bias. Table 5.3 provides examples of the scale poles used in this study. As shown in Table 5.4 different scale poles were used to measure superior service solutions, knowledge-management processes, people-management processes, and brand equity. Table 5.4 further shows, the ranges of scale poles employed are strongly

disagree/ strongly agree, never used/widely used, to a very little extent/to a very much extent, and not at all/extensively.

As shown in Table 5.4, service solution superiority was measured via a seven-point scale with scale pole end points of "Strongly disagree" and "Strongly agree". The underlying reason for choosing this scale pole was that the reference works used to develop the measure employed the same scale poles (see, O'Cass and Ngo 2011). As shown in the second part of Table 5.4, knowledge assimilation was measured via a seven-point scale, with scale end points of "Never used" and "Widely used". As this measure was adopted from the work of De Luca and Atuahene-Gima (2007), their scale pole was adopted. Deep and broad customer knowledge and deep and broad technical knowledge were measured using a seven-point scale with scale pole end points of "Strongly disagree" and "Strongly agree". The scale pole was adopted from the work of Zhou and Li (2012) as these measures were built on their work.

As shown in the third part of Table 5.4, items pertaining to people management process and CCSP were measured via a seven-point scale with scale poles ranging from "To a very little extent" to "To a very large extent". The scale pole was adopted from the work of Atuahene-Gima and Wei (2012). They used this scale pole to measure *the extent* of new product performance. The present research also examines *the extent* of CCSP, thus; using the same scale pole was deemed appropriate. Employee brand building behaviour and brand specific transformational leadership were measured using a seven-point scale. The scale pole end points of "Never" and "As often as possible" were used for employee brand building behaviours (Schepers et al. 2012) and scale pole end points of "Not at all" and "Frequently, if not all the time" were used for brand specific transformational leadership (Liao and Chuang 2007)[6]. Firm based brand equity and customer based brand equity were measured using a seven-point scale with the exact scale pole used by the references. The scale poles for customer based brand equity are "Strongly disagree" and "Strongly agree" (Walter et al. 2003). Market effectiveness and Profitability included in firm based brand equity were measured via a seven-point scale with scale poles ranging from "Not at all" to "Extensively" (Vorhies and Morgan 2005). Finally, environmental turbulence was measured using a seven-point scale adopted from Atuahene-Gima and Wei (2011) with the scale pole end points of "Strongly disagree" and "Strongly agree".

[6] This study adopted scale poles for "employee brand building behaviours" and "brand specific transformational leadership" from other studies, because Morhart et al. (2009) did not mention the scale pole they used in their paper. The researcher contacted the author but the reply came through after data collection started.

Table 5.3 The anchor poles for all constructs						
Service solution superiority						
Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**
Knowledge management process						
Deep and broad customer knowledge *Deep and broad technical knowledge*						
Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**
Knowledge assimilation						
Never Used						**Widely Used**
1	**2**	**3**	**4**	**5**	**6**	**7**
People-management process						
CCSP						
To a very little extent						**To a very large extent**
1	**2**	**3**	**4**	**5**	**6**	**7**
Employee brand building behaviour						
Never						**As often as possible**
1	**2**	**3**	**4**	**5**	**6**	**7**
Brand specific transformational leadership						
Not at all						**Frequently, if not always**
1	**2**	**3**	**4**	**5**	**6**	**7**
Brand equity						
Customer based brand equity						
Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**1**	**2**	**3**	**1**
Firm based brand equity *(Market effectiveness and Profitability)*						
Not at all						**Extensively**
1	**2**	**3**	**1**	**2**	**3**	**1**
Control variable						
Environment turbulent						
Strongly disagree						**Strongly agree**
1	**2**	**3**	**1**	**2**	**3**	**1**

5.4.2.1.1.4. ***Step 4: Draft pool of item***

Following Step 3, item generation and scale pole development, a draft pool of items was developed containing 89 items measuring the ten focal constructs and control variables. The list of constructs with the initial numbers of items is shown in Table 5.4. As outlined in the above discussion and detailed in Table 5.4, for some constructs measures were

developed specifically for this study (service solution, CCSP, technical knowledge), while for some constructs existing measures from within the literature were adopted.

Table 5.4

Initial pool: constructs and numbers of corresponding items

Constructs	***Number of Items***	***References***
Newly developed measures		
Deep and broad technical knowledge	6	Boh et al. (2014); Zhou and Li (2012); Grant (1996)
Service solution superiority	10	Hogan et al. (2011); O'Cass and Ngo (2011)
CCSP	12	O'Cass and Ngo (2011); Agarwal and Selen (2009); Menon et al. (2005)
Existing measures in the literature		
Brand specific transformational leadership	20	Morhart et al. (2009)
Employee brand building behaviours	8	Vey and Campbell (2009); Morhart et al. (2009), and King and Grace (2012)
Deep and broad customer knowledge	8	Arnold et al (2010) and De Luca and Atuahene-Gima (2007)
Knowledge assimilation	6	De Luca and Atuahene-Gima (2007)
Customer based brand equity	5	Walter and Ritter 2003)
Market effectiveness	4	Vorhies and Morgan (2005),
Profitability	4	Vorhies and Morgan (2005),
Environmental turbulence	6	Atuahene-Gima and Wei (2011)
Total	***89***	

5.4.2.1.2. ***Phase two: Item refinement***

To assess the all initial items generated in phase one, step two, content validity and face validity procedures were employed. Content validity refers to the definition of constructs and is defined as the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment

(Haynes et al. 1995). Face validity is a component of content validity and refers to the degree that the items within an assessment instrument are appropriate to the targeted construct and assessment objectives (Haynes et al. 1995; Anastasi, 1988; Nevo, 1985). Face validity explores the readability of the items (Cavana et al. 2001). To assess the items in the survey the researcher undertook four stages as expert-judge of face validity, decision rules for removing and/or keeping preventative items, pretesting, and final questionnaire.

5.4.2.1.2.1. ***Step 1: Expert-judge of face validity***

Face validity involves having the generated items assessed by expert judges for their content and face validity. In this study, the recommendations of Morgan et al. (2012), Ngo and O'Cass (2013), and Zaichkowsky (1984) were followed. Items were submitted to expert judges for content validation, feedback and item reduction if necessary. This process is based on the suggestion of Morgan et al. (2012) and Zaichkowsky (1984) and involved an initial subjective assessment by judges for deletion of unrepresentative items in line with the appropriate meaning of the terms, definitions and then a finer judging. The content and face validity of the items was examined by the experts in two ways through the item list. First for initial deletion of recognisably poor items and then again for more rigorous refinement of the items which remained as recommended by O'Cass and Siahtiri (2013), Heirati et al. (2013), Morgan et al. (2012), Ngo and O'Cass (2011), and Zaichkowsky (1984).

To examinee face validity, the researcher invited nine senior academics in the marketing and management disciplines who were provided with a set of instructions for judging and asked to evaluate the conceptual definition of the constructs with the corresponding items (Morgan et al. 2012). The senior academics were asked to rate each item as either: not representative, somewhat representative, or very representative of the construct's definition (e.g., O'Cass and Siahtiri 2013; Heirati et al. 2013; Ngo and O'Cass 2013; Zaichkowsky 1985). Within the face validity stage, instead of giving the nine expert judges a lengthy draft survey of all items, three sub draft surveys were created from the initial draft survey and each sub draft survey was given to a group of three expert judges in the field. Totally, there were three groups each containing three expert judges corresponding to three sub-surveys.

5.4.2.1.2.2. ***Step 2: Decision rules for removing and/or keeping preventative items***

After expert judge's evaluations on content validity, a specific decision rules should be considered to determine which items should be retained (or modified) in the survey (e.g., O'Cass and Siahtiri 2013; Heirati et al. 2013; Cillo et al. 2010). There are three decision rules to retain or remove the item(s) from the item pool (draft measures for surveys): (1) the sum score approach (the total score for an item across all), (2) the complete approach (the number of judges that rated an item as completely representative of the construct), and (3) the not representative decision rule (the number of judges indicating that the item was not representative of the construct of interest) (Ngo and O'Cass 2013; Hardesty and Bearden 2004).

Based on the recommendation of Ngo and O'Cass (2013) and Hardesty and Bearden (2004), after receiving feedback from expert judges, decisions about which items to delete or retain were made. The first decision was based on the sum score, the second decision was based on the complete approach, and the last decision made was based on not representative rule. Of the 89 initial items, 17 items were dropped based on the suggestions and comments from these expert judges. Consequently, 72 items were retained in the refined item pool, which are shown in Appendix II, III, and IV.

Furthermore, two more questions were designed to capture the knowledge level and confidence of respondents to answer the questions. This decision was made in line with the suggestion of Boso et al. (2013), Morgan et al. (2012), De Luca and Atuahene-Gima (2007) and Atuahene-Gima (2005) to ensure the integrity and reliability of the responses obtained. The respondents were first asked to evaluate the extent that they are knowledgeable about their firms' business operations, characteristics, business processes, performance and business environment (at the beginning of the questionnaire). Second, they were asked to identify their confidence in possessing the necessary knowledge to complete the statements asked throughout the questionnaire (at the end of the questionnaire) using a seven-point Likert scale with scale pole Strongly Disagree/Strongly Agree. Adopting this procedure requires a judgment about keeping and removing respondents and it was decided that any respondents who answered below 4 on the two questions were to be dropped from the study (Bose et al. 2013; Morgan et al. 2012).

Further, nine firmographics and demographic items and two marker variables to control for common method variance were added to the draft pool of item. The demographic items (1-9) and marker variables (10-11) are:

1. Company age;
2. Company size;
3. Title of the respondent;

4. Service sectors
5. Age of respondents;
6. Gender of respondents;
7. Level of graduation of respondent;
8. The position of respondent and the year of experience in the same position;
9. Previous position and years of experience in the position.
10. I like the company Microsoft.
11. My life is enjoyable.

Having chosen the scale poles and measurement items for all constructs, the physical layout of the survey becomes a critical component in the design stage (Ekerljung et al. 2013). The layout is argued to directly affect the appeal and ease of administration of the survey (Ekerljung et al. 2013; Toepoel and Dillman 2011; Fuchs 2009; Aaker et al. 2004). As such, issues involving opening instructions and question sequence were addressed at this stage (Podsakof et al. 2003). To minimise possible errors and biases, every attempt was made to ensure that the instructions were clear and simply stated when developing the draft survey for pilot testing. Demographic questions were placed at the end of the survey (Burns and Bush, 1995). The final three surveys are presented in Appendix II, III, and IV.

Table 5.5

Refined item pool and demographic items

Constructs	***Number of Items***
Service solution	9
CCSP	6
Employee brand building behaviour	6
Brand specific transformational leadership	15
Deep and broad customer knowledge	7
Deep and broad technical knowledge	4
Knowledge assimilation	6
Customer based brand equity	5
Market effectiveness	4
Profitability	4
Environment turbulent	6
Demographic	9
Marker variable	2
Respondent's knowledge & confidence	2
Total	***85***

5.4.2.1.2.3. Step 3: Pretesting

After undertaking the face validity assessment, a pilot test was conducted. The main reason to conduct the pilot test was to identify any problems in readability and understandability of items in the survey (Aaker et al. 2005). Pilot testing can be implemented using two different approaches: qualitative pretesting (Churchill 1979; Spector 1992) or quantitative pretesting (Presser et al. 2004). As the quantitative pilot testing is more difficult in the context of B2B due to the finite number of respondents (Cavana et al. 2001), this research adopted a qualitative pilot test approach. Further, the employment of the qualitative pilot test has been widely used by researchers in the marketing and management literature (see, O'Cass and Ngo 2011 and Kohli et al. 1993). To pilot test the survey, a set of interviews were conducted with senior managers within B2B PSFs, which are the target respondent for this study. Senior managers of 10 PSFs in Taiwan were invited to take part in the pilot-test. Their contact details were obtained from the list provided by Ministry Economic Affair, R.O.C. in Taiwan.

Senior managers were initially contacted via phone. A detailed explanation of the purpose of the study was given to them. Upon their consent to participate in the pilot-testing, in-depth interviews were conducted with the ten senior managers. In the pilot testing phase step, the interviewees were asked to explain why they responded the way they did on each item or there is any other way to interpret the question. Further, interviewees were asked to provide feedback on question sequence, items duplications, and any other points of concern with the survey instrument that respondents had. The pilot test revealed no particular problems with the survey's terminology, clarity of instructions, or response formats, showing acceptable face validity (Cavana et al. 2001). However, the feedback obtained from the pilot-testing demonstrates a good readability of the questionnaire and did not result in any reduction in questions and items in the survey.

5.4.2.1.2.4. Step 4: Final surveys

As shown in Figure 5.3, the last phase of measurement development is finalising surveys. The information presented in Table 5.5 shows 85 items were included in the draft item pool. As discussed in Section 5.2 and shown in Table 5.1 this study adopts a multiple informant design. This approach was adopted in accordance with the work of Zhou and Li (2012), Arnold et al. (2011), Slotegraaf and Atuahene-Gima (2011), Vorhies et al. (2011), and De Luca and Atuahene-Gima (2007) aiming to decrease the effect of common method bias. Further, it is acknowledged that multiple-informant design (e.g., data from three hierarchical levels) provides high quality data, with less bias problems

than single-informant designs (Damanpour et al. 2009). Following the process outlined by a number of researchers, three surveys were developed for three different management positions in PSFs (labelled as Survey A, B, and C for three different positions in each PSF).

The respondents to Surveys A, B and C were one senior (CEO or equivalent) and two mid-level mangers' in different organisational positions within each PSFs. The use of managerial perception has been extensively adopted within marketing and management research (e.g., O'Cass and Sok 2013; Morgan et al. 2012; Morgan et al. 2009; Vorhies et al. 2009; Newbert 2008), because they are in a good position to respond to measures pertaining to firm routines and firm performance. It is also argued that managerial perception is appropriate and yields reliable information (Morgan et al. 2009; Ngo and O'Cass 2009; Newbert 2008; Vorhies and Morgan 2005). This view is also held as there are significant constraints in obtaining objective data because of confidentiality (Ward et al. 1996; Blindenbach-Driessen et al. 2010). Further, research has shown that there is a high correlation between objective performance indicators and subjective performance items used in performance measurement (Morgan et al. 2012), which validate the application of subjective data.

Survey A was completed by CEOs, who answered questions related to the knowledge assimilation, employee brand building behaviour, and environmental turbulence. The reason for the allocation of knowledge assimilation to CEOs is based on the suggestion of Zhou and Li (2012) who believe CEOs are in a better position to answer questions about knowledge assimilation. The reason for allocating employee brand building behaviour to CEOs is based on the work of Liao and Chuang (2007) who believe leaders are in the better position to answer questions about employee behaviour. The CEOs should also know the level of changes in the environment, therefore; they are considered as suitable respondent to answer the items related to environmental turbulence.

Survey B was completed by marketing managers or sales managers, who answered questions related to the deep and broad knowledge (customer and technical), CCSP, service solution, market effectiveness and profitability. Marketing managers or sales managers were deemed suitable position in the PSF to answer these questions. This assumption has been built on the work of Vorhies et al. (2011), because marketing managers or sales managers should have appropriate knowledge of customer and technical knowledge to offer service solutions. Further, as they design marketing activities they are in a suitable position to judge performance in the market and the results obtained from their marketing activities (Vorhies et al. 2011).

Survey C was completed by customer service managers or customer relationship managers who answered questions related to the customer commitment and brand specific transformational leadership. The underlying reason for asking questions about customer commitment is that customer service managers or customer relationship managers are more likely to be in contact with customers and more aware of relationships with customers (Ernst et al. 2011). Further, they are considered more suitable to evaluate their supervisors' transformational behaviour since subordinates are the target of the leader's influence and are thus most likely to observe their behaviour (Cho et al. 2011). If there were no such positions in a PSF, the surveys were directed to managers in equivalent positions based on the instruction provided to the CEO, as the CEO was responsible for introducing the other two managers. The three surveys (A, B and C) are provided in Appendix II, III, and IV.

Survey translation. As the data were to be collected in Taiwan, it was necessary to translate all surveys. Following Slotegraaf and Atuahene-Gima (2011) the double-translation method was used to translate the survey from English to Mandarin. Following this approach, the survey was first prepared in English and then translated into Chinese by a certified translator and then back into English by another certified translator to evaluate the translation accuracy (see also O'Cass et al. 2014; Tang et al. 2008; De Luca and Atuahene-Gima 2007). Any conflicts were discussed by the researcher and translators until agreement was reached (O'Cass and Sok 2013 and 2011; Lee and Zhou 2012; Zhou et al. 2008).

5.4.2.2. ***Design of sampling plan***

Listing all elements in the population from which the sample is drawn is called a sampling frame (Cavana et al. 2001). The key concepts are the population (the total target group who could be the subject of the research) and the sample (the actual group who are included in the study and from whom the data are collected) (Punch 2005). Thus, sampling needs to be defined and specify the population, why that population is used, what the sample size is to be, and why that sample size is sufficient.

The population of this study is based on service firms, specifically B2B PSFs operating in Taiwan. The importance of studying PSFs in Taiwan was fully justified in Chapter One, Section 1.3. The specific criteria developed for PSFs to be considered for inclusion in the sample were:

1. PSFs - medium and large size. Medium and large sized PSFs were considered appropriate for the study, because they potentially have more advanced

processes, resources, and market power to exploit existing competencies and build new ones (De Luca and Atuahene-Gima 2007). Furthermore, firm size is considered to affect firm performance, outcome, and knowledge base to provide the outcome (Boso et al. 2013; Vorhies et al. 2011). Moreover, these firm sized have different levels of management, enabling them to fill out the three designed surveys for three levels of management. Following Boso et al. (2013) the number of employees was considered as an indicator of PSF size. Building on O'Cass and Ngo (2010) who propose that the number of employees more than 20 is considered as medium and more than 200 is large size firm, PSFs in these ranges of size were selected.

2. PSFs that work in the B2B context, because in the B2B context customers actively participate in the process of superior service solutions provision (Aarikka-Stenroos and Jaakkola 2012; Greenwood et al. 2005; Lowendahl 2000; Maister 1993). Further, in the B2B context, branding activities has become more and more important to distinguish firms in the market and research in this area is scant (Baumgarth and Schmidt 2010).

After setting the criteria for PSFs to be eligible to participate in the research, it was necessary to anticipate the size of the sample Ye and Lord (2014) argue the insufficient sample sizes may produce bias. The sample size for this study estimated based on the suggestion of Aaker et al. (2006) who believe a sample can be chosen based on previous similar studies. This research adopted the contention of O'Cass and Ngo (2012) and Jacob (2006) who suggest 150 or fewer cases in B2B contexts results in an appropriate finding. Further, Henseler et al. (2009) introduced "rule of thumb" to estimate sample size in PLS path modelling using two different approaches. In the first approach, they suggest the sample size should be ten times the number of indicators of the scale with the largest number of formative indicators. The second approach suggests ten times of the largest number of structural paths directed at a particular construct in the inner path model. Given that there are 10 structural paths in the "B2B Professional service firms service solutions model", the sample size of over 100 cases deemed sufficient.

To obtain the necessary data, this study followed the suggestion of Homburg and Kuehnl (2013) and obtained a list of 3000 PSFs from a commercial provider. From the list, 650 PSFs were randomly selected and contacted by telephone to obtain their consent to participate in the study. Building on the work of Morgan et al. (2012) the researcher offered a summary of the key findings as an incentive to participate and to increase the response rate. When a CEO agreed to participate in the study, the CEO was required to provide the names of two senior managers within their firm to serve as

the other key informants (Surveys B & C). After this stage, the researcher sent an email to the nominated persons inviting them to complete an online survey. The researcher gave the nominated persons a link to gain access to the online Survey. A reminder email was sent to each nominated informant two weeks after the initial mailing to encourage participating firms (and respondents) to complete the surveys in an attempt to increase the response rate.

5.5. Analysis procedure

An overview of data analysis was provided in Chapter One, Section 1.5 and a brief review of data analysis approaches and techniques is also presented in this Section. The detailed discussion of the data analysis procedure is presented in Chapter Six. Data analysis technique depends on whether the data collection method is quantitative or qualitative (Neuman 2012). As this study employed surveys to collect the data to test the research model presented in Chapter Four, Section 4.3 and the hypotheses developed in Sections 4.2.2 to 4.2.4, quantitative analysis was applied (Cavana et al. 2001). The first stage in data analysis included descriptive analysis to identify the firmographic profile of the sample. Following this stage, reliability and validity assessments as well as factor analysis of measure were undertaken (Schumacker and Lomax 1996; Byrne 2001).

Testing the main and moderation effects. To test the direct effects and moderation effects as outlined in the hypotheses, this research followed the procedure proposed by Slotegraaf and Atuahene-Gima (2012), Ngo and O'Cass (2013) and O'Cass et al. (2013) and applied Partial Least Squares (PLS). PLS is recognised as a suitable method to assess the research model and relationships due to different reasons. PLS is a variance-based structural equation modelling (SEM) technique that is more advantageous than covariance-based SEM approaches when measures are not well established (Fornell and Bookstein 1982). In this context, PLS provides measurement assessment, which is essential when new numbers of items are and refined measures are developed (see Dawes, Lee and Dowling 1998; Smith and Barclay 1997). The underlying reason is that in the early stages of model development, it is appropriate to determine causality from the measures to the construct and PLS is more suitable to measure causality (Henseler et al. 2009).

Further, PLS-SEM maximises the explained variance of the endogenous latent variables by estimating partial model relationships in an iterative sequence of ordinary least squares (OLS) regressions. CB-SEM estimates model parameters so that the discrepancy between the estimated and sample covariance matrices is minimised. In

this study, the primary concerns are maximising the prediction of dependent endogenous constructs, including employee brand building behaviour, CCSP, service solution superiority, customer based brand equity and firm based brand equity. Moreover, as PLS allows the examination of measures and theory simultaneously (e.g., Fornell and Bookstein 1982). It was used for examining the measurement properties (outer-measurement model) and hypotheses (inner-structural model) which provides specification through two sets of linear equations namely outer-measurement model and inner-structural model (Fornell and Cha 1994). The outer-measurement model specifies the relationships between observed indicators and their respective constructs, while the inner-structural model specifies the relationships between latent constructs (Falk and Miller 1992; Fornell and Cha 1994; Hulland 1999). The last advantage of using PLS in this research is that PLS is suitable for sample size less than 200 (Hair et al. 2011; Slotegraaf & Atuahene-Gima, 2011 ; Rodríguez-Pinto et al. 2008).

Further, in addition to above mentioned advantages of PLS, it also has a number of specific advantages over other SEM statistical approaches, such as LISEREL and AMOS. PLS as a variance-based structural equation modelling avoids many of the assumptions and chances that improper solutions will occur as in the case of covariance-based approaches via LISREL or AMOS analyses (Henseler et al. 2009; Bagozzi et al. 1991). Underlying this advantage is the fact that PLS underestimates path coefficients compared to LISREL and AMOS (Henseler et al. 2009; Dijkstra 1983). Further, PLS produces a conservative test of the substantive relationships. Given the nature of the study and the benefits of PLS-SEM outlined here, this study employs PLS-SEM, specifically Smart-PLS v2 to evaluate the adequacy and validity of research model and hypothesis testing (Henseler et al. 2014; Henseler 2012; Hair et al. 2011; Wetzeles et al. 2009**)**.

The last stage of research design is reporting the result as presented in Figure 5.1. The reporting stage includes interpreting statistical indexes and their meanings, which are presented in Chapter Six. The second stage of reporting involves discussing the findings and exploring the theoretical reasons for identified relationships between constructs. In Chapter Seven, theoretical and managerial implications are discussed and limitations of the study to open up future researches are explored.

5.6. Conclusion

This chapter has provided a comprehensive discussion of the research methodology applied in this study. It introduced the stages that the student researcher went through to design and implement the research. This chapter also provided the justification for the

research methodology adopted and detailed the stages of the research design. To obtain the most reliable and valid data and decrease common method variance the design covered specific issues such as clarity of items, employing multiple informant design and having marker variables in surveys. Regardless of the disadvantages of online survey methods such as lack of physical presence and motivation, an online survey was considered to be more suitable due to faster response and cost, which could overcome two strong limitations of PhD research (small funds, limited time to complete the research). In Chapter Six, attention is given to analysing the data and reporting the results to test the hypotheses.

Chapter Six

Data Analysis

With the ever-increasing acceptance of the need to empirically validate theories in the social science disciplines, data and multivariate analysis techniques play a central role in today's research. The evolution of structural equation modeling (SEM) methods is perhaps the most important and influential statistical development in the social sciences in recent years.

Hair, Ringle and Sarstedt 2012, p.312

6.1. Introduction

With the growing acceptance of the need to empirically validate theories in the social science disciplines, especially marketing (e.g., Davis et al. 2013), multivariate analysis techniques (e.g., Sarstedt et al. 2013) play a central role in contemporary research to validate developed theory. Data analysis and reporting of results connect the research method and data with implications drawn from the study. While the solution literature suffers from a lack of generalisability of findings (Jacob and Ulaga 2008), the present study puts effort into employing a research methodology that would increase the generalisability of the findings in the solution domain. The data analysis undertaken in this Chapter (Chapter Six) aims to address the research problems using statistical techniques to increase the robustness and generalisability of the findings. Building on the suggestion of Perry (2002), Chapter Six focuses on using specific statistical methods to inspect the data and examine the precision and significance of the "B2B Professional service firms service solutions model" which is underpinned by the hypotheses.

To examine the precision and significance of the theoretical model several analytical stages were undertaken. In the first stage, preliminary analysis was undertaken to identify profiles of the sample and descriptive statistics of all indicators (items). Preliminary analysis is discussed in Section 6.2. The analysis technique is presented in Sections 6.3 and 6.4 covers the outer measurement model result. Section 6.5 presents the result of the validity assessment. The common method variance analysis is detailed in Section 6.6. The results of the hypothesis testing are presented in Sections 6.7 and Section 6.8 provides the result of the assessment of the predictive relevance of the inner structural model, and the method fit of inner structural models. Finally, the chapter is closed with a summary of hypotheses results in Section 6.9. The conclusion of results is presented in Section 6.10.

6.2. Preliminary data analysis

As indicated in Chapter Five, the data were collected in Taiwan from professional service firms. The significance of Taiwan as an appropriate laboratory for the present research was discussed in Chapter One, Section 1.3. To collect the data from firms within the sampling frame a list of professional service firms was obtained from a commercial list provider. The list included 3000 PSFs and from this list, 650 firms were randomly chosen. Among the 650 PSFs, 10% were disqualified, because they did not meet the sampling criteria established (e.g., did not have more than 50 employees) and 65% were either not interested to participate in data collection, or did not reply to invitation letters to participate in the survey, or provided incomplete surveys. Finally, 150 B2B PSFs completed and returned all three surveys (A, B, and C), providing a response rate of 23%, which demonstrates satisfactory response rate. This response rate compares very favourably with Agarwal and Selen (2009) who reported response rate of 22.13% in telecommunication and Sweeney et al. (2011) who obtained 15% response rate from a study of PSFs.

In undertaking the data analysis for this chapter the suggestion of Anderson et al. (2010) were adopted in that the preliminary analysis encompasses two important tasks. The first task, concerns examining and reporting the profile of the sample based on demographic items of firms and individual respondents across the three surveys. The second task concerns computing the descriptive statistics of the construct measures. The sample profiles in terms of firmographics are discussed in Section 6.2.1, followed by the results of the descriptive analysis of the measures in Section 6.2.2.

6.2.1. Profiles of the Sample

Profiles of the sample are categorised into two categories, the first category explains the PSFs' characteristics and, the second category outlines the respondents' characteristics. The PSFs characteristics are characterised by three items including (1) service sectors, (2) PSFs' size, and (3) PSFs' age. The information related to respondents' characteristics include (1) designated tittle, (2) education level, (3) gender, (4) age, (5) total years of experience in their current position, and (6) years of experience in the examined PSF.

The information related to PSFs' characteristics is presented in Table 6.1. The sample covered a broad range of companies in terms of sectors and size. PSFs included in the sample came from ten different sectors. The sectors were represented as follows: software design firms accounted for 18%, test and inspection services 18%, architectural 17.3%, consultancy 14.7%, research services 8.7%, engineering 6.7%, real

estate 6%, finance 5.3%, interior design and accounting both with 2% and advertising services 1.3%.

Further, as shown in Table 6.1, 18.7% of PSFs were founded between 1-10 years prior to data collection, 34.6% of PSFs were founded between 11-20 years, 29.3% were founded between 21-30 years, and 17.3 % of the firms were founded more than 30 years ago. The results presented in Table 6.1 reveals that the majority of PSFs were between 11-20 years of age. The results of the analysis presented in Table 6.1 further reveal that 48.7% of the PSFs had between 50 to 100 fulltime employees, 22.7% of PSFs had 101-200 fulltime employees, 14.7% had 201-500 employees, 2.7% had 501-1000 fulltime employees, and 8.7% of PSF had over 1000 fulltime employees. Further, within the surveys returned, 2.7% of the firms did not indicate the number of employees. The results presented in Table 6.1 reveals that the majority of PSFs had 50-100 full-time employees.

Table 6.1
Profile of sample - PSF characteristics

Variable	Industry and their code		Observed Frequency	Percentage
Industry Sector	10	Software design services	27	18.00%
	11	Test and inspection	27	18.00%
	3	Architecture	26	17.33%
	4	Consultancy	22	14.67%
	9	Research	13	8.67%
	5	Engineering	10	6.67%
	8	Real estate service	9	6.00%
	6	Finance	8	5.33%
	1	Accounting	3	2.00%
	7	Interior design	3	2.00%
	2	Advertising	2	1.33%
Firm Age		1 to 10	28	18.7%
		11 to 20	52	34.6%
		21 to 30	44	29.3%
		Over 31	26	17.3%
Firm Size		50 to 100	73	48.7%
		101to 200	34	22.7%
		201 to 500	22	14.7%
		501-1000	4	2.7%
		Over 1000	13	8.7%
		Missing	4	2.7%

The information related to individual respondents is presented below. As mentioned in Chapter Five, Section 5.4.2.1.2, step 4, three different respondents in three different managerial positions from each firm were asked to complete Surveys A, B, and C. As seen in Figure 6.1, the majority of respondents across all three surveys were males, with one 125 respondents of Survey A (83% of respondents), 132 respondents of Survey B (88% of respondents), and 117 respondents of Survey C (78% of respondents) were male. Only 15 respondents of Survey A (17% of respondents), 18 respondents of Survey B (12% of respondents), and 33 respondents of Survey C (22% of respondents) were females.

Figure 6.1
Distribution of gender across three surveys

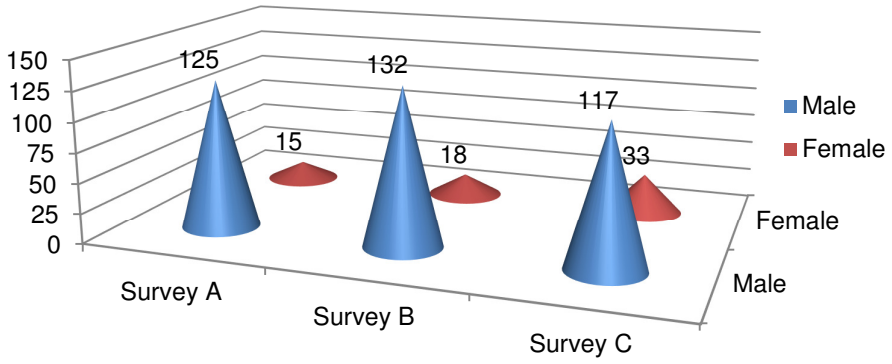


Figure 6.2 demonstrates the distribution of education among respondents. As shown in Figure 6.2, the majority of respondents who completed Survey A (50% of respondents) and Survey B (54% of respondents) had postgraduate qualifications, while undergraduates were the dominant group of respondents that completed Survey C (53% of respondents).

Figure 6.2
Distribution of education across three surveys

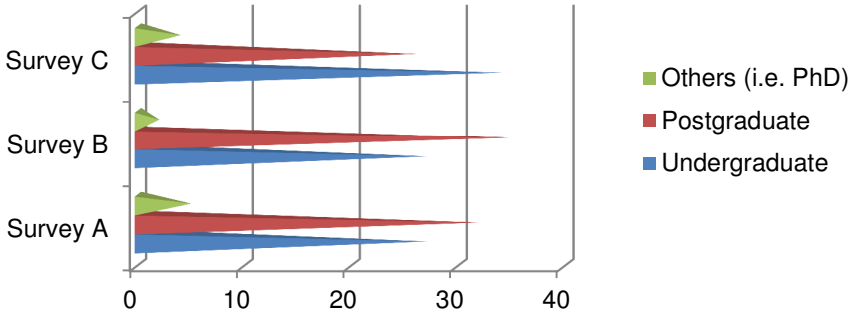


Figure 6.3 presents the distribution of positions across the three surveys. Overall, 35.3% of respondents of Survey A were CEOs, 34.6% vice presidents, and 28% were deputy managers. In Survey B, marketing managers were dominant with 51%, followed by directors (30%) and sales managers (19%). In Survey C, general managers were dominant with 83% and only 6% of respondents held the position of customer service managers.

Figure 6.3
Distribution of positions across three surveys

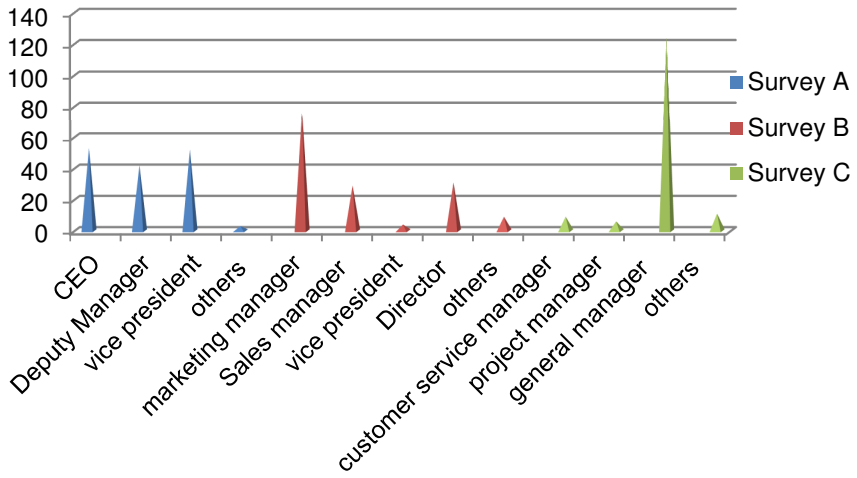


Figure 6.3 presents the age distribution across Surveys A, B, and C. Overall, 12.1% of respondents in Survey A were between 20 to 30, 36.5% between 31 and 40, 24.3% between 31 and 40, and 24.3% between 51 and 60 and only 2% were over 60 years of age. In Survey B, 18.8% of respondents were between 20-30 years of age, 35.8% were between 31-40, 30% between 31 and 40, and 11.3% between 51and 60 and only 3% were over 60 years of age. In Survey C, 18.1% of respondents were between 20 and 30, 34.5% were between 31 and 40, 36.3% between 31 and 40, and 9% between 51 and 60, and only 1% was over 60 years of age. Further, the average age of respondents for Survey A was 42.33, for Survey B was 40.12, and for Survey C was 39.38.

Figure 6.4
Distribution of age across three surveys

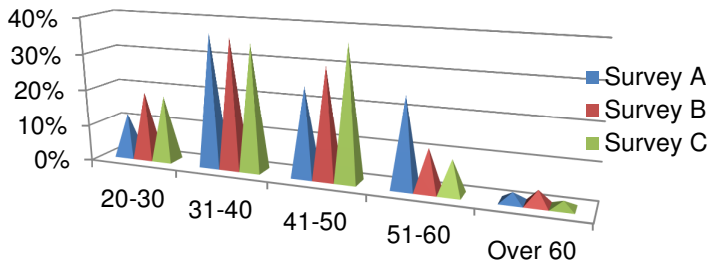


Table 6.2 presents the distribution of years of experience of respondents across Surveys A, B, and C. As shown in Table 6.2, 52% of respondents in Survey A had held their current position between 3 to 5 years and 36% have been working for the company for 6-8 years. In Survey B, 64% of respondents had held their current position between 3 to 5 years and 45% of them have been working for the observed case for 6 to 8 years. All respondents who completed Survey C have been working in their current position for less than three years. Further, 61% of respondents in Survey C have been working in the current position in the PSF for 3 to 5 years and 3% of them had been working for 9 to15 years.

Table 6.2
Years of experience of respondents in their position

Years	Survey A		Survey B		Survey C	
	Total years of experience in the current position	Years of experience in in the PSF	Total years of experience in the current position	Years of experience in in the PSF	Total years of experience in the current position	Years of experience in in the PSF
Less than 3	14%	5%	27%	7%	100%	21%
Between 3-5	52%	30%	64%	31%		61%
Between 6-8	25%	36%	6%	45%		12%
Between 9-15	4%	15%	1%	9%		3%
Over 15	3%	12%	0.06%	4%		0.07%

6.2.2. Descriptive statistic results

As shown in Chapter Five, Table 5.1, 12 constructs are represented within the "B2B Professional service firms service solutions model" (Chapter Four, Section 4.3), including deep and broad technical knowledge, deep and broad customer knowledge, knowledge assimilation, brand specific transformational leadership, employee brand building behaviour, CCSP, service solution superiority, customer based brand equity, market effectiveness, and profitability. As noted in Section 6.2, this study obtained 150 completed and usable survey packages including three Surveys A, B, and C. Given that

the data collection method was an online approach and respondents could not move to the next question if they had not responded to previous question, there were no missing data. As such, no surveys were deleted from the data set at this stage of the analysis. The summary of means, standard deviation (SD), skewness, and kurtosis for each item in each of the construct measures, control variables, and respondents' knowledge of the issues and confidence in completing the survey related to Surveys A, B, and C are presented in Tables 6.3, 6.4, and 6.5 respectively.

As shown in Table 6.3, Survey A includes items related to knowledge assimilation (KAS1 to KAS6), employee brand building behaviours (EXBB1 to IRBB 3), environmental turbulence (ET1 to ET6), and firm size. There were five items measuring the knowledge assimilation from KAS1 to KAS6 and six items measuring employee brand building behaviour, including three items measuring the employee extra role brand building behaviour (EXBB1 to EXBB3) and three items measuring the employee in-role brand building behaviours (IRBB1 to IRBB3). The results of descriptive statistics of these items indicate that means ranged from 4.81 to 5.27 and standard deviation (SD) ranged from 0.90 to 1.29. The calculated standard deviations indicate that the data points are spread over a large range of values (Niles, 2014). Control variables in this study were environmental turbulence, firm size, and service sector measured in survey A. Environmental turbulence was measured using six items ET1 to ET6. The results of descriptive statistics of these items shown in Table 6.3 indicate that means ranged from 4.93 to 5.25 and SD ranged from 1.17 to 1.27. Firm size is considered as the logarithm of the number of employees (Boso et al. 2013). Following Boso et al. (2013) the natural logarithm transformation was undertaken. The mean of firm size is 450.73 and SD is 1.18.

This study used skewness and kurtosis to examine the shape characteristics of the distribution and normality of items (Joanest and Gill 1998; Mardia 1970). Skewness is a measure of symmetry of probability distribution and it should be close to zero (Joanest and Gill 1998; Mardia 1970). Negative values for Skewness mean that the left tail is longer than right tail and positive values of skewness means right tail is longer than the left tail. The acceptable skewness should be between ±1 (Joanest and Gill 1998; Mardia 1970). Kurtosis is a measure of peak or flat relative to a normal distribution and it should range in the domain of ±3 (Joanest and Gill 1998; Mardia 1970). Table 6.3 shows that the scores of skewness of items in survey A ranged from 0.38 to 0.83 and kurtosis ranged from 0.28 to 1.89. The analysis of this information shows that there is no problems with the normality of constructs in survey A, as all skewness are in range of ±1 and all kurtosis are in the range of ±3.

The correlation between items in each construct were computed, but are not illustrated in Table 6.3. The result indicated that the correlation between items in the measure of knowledge assimilation ranged between 0.32 and 0.786, for employee brand building behaviours ranged between 0.24 and 0.95, and for environmental turbulence ranged between 0.18 and 0.87.

Table 6.3
Results of descriptive statistics - Survey A

Constructs		Mean	SD	Skewness	Kurtosis
Knowledge assimilation					
KAS1	regular formal reports and memos that summarise learning.	5.15	1.17	-0.78	1.49
KAS2	information sharing meetings as a communication tool.	5.21	1.17	-0.76	1.38
KAS3	face-to-face discussions by cross-functional teams.	5.27	1.04	-0.42	1.03
KAS4	formal analysis of failing service development projects.	5.00	1.17	-0.70	1.28
KAS5	formal analysis of successful service development projects.	5.06	1.14	-0.74	1.57
KAS6	experts and consultants to synthesise knowledge.	4.81	1.29	-0.78	0.49
Employee brand building behaviour					
EXBB1	tell their supervisor about ways to strengthen our brand image.	5.15	0.96	-0.63	1.01
EXBB2	make constructive suggestions on how to improve our customers' brand experience.	5.16	0.96	-0.83	1.89
EXBB3	share useful ideas on how to improve our brand's performance.	5.20	0.90	-0.57	1.36
IRBB1	pay attention to ensure that their actions in customer contact situation are not at odds with our standards for brand-adequate behaviour.	5.07	1.01	-0.38	0.84
IRBB2	adhere to our standards for brand-congruent behaviour.	5.13	1.04	-0.59	1.06
IRBB3	adhere to our standards of behaviour that are consistent with our brand image.	5.16	1.01	-0.41	0.89
Environment turbulence					
ETu1	the technological environment was very complex.	4.93	1.23	-0.59	0.30
ETu2	predicting the actions of competitors was extremely difficult.	4.77	1.25	0.42	-0.20
ETu3	customers' needs were highly unpredictable.	4.84	1.23	0.62	0.58
ETu4	technological changes were very unpredictable.	4.81	1.27	-0.56	0.32
ETu5	the market environment was very dynamic.	5.03	1.17	-0.54	0.28
ETu6	the market environment was highly competitive.	5.25	1.18	-0.48	0.12
	Firm size	450.7	1.18		

As shown in Table 6.4, Survey B included items related to deep and broad technical knowledge (DEK1, DEK2, BEK1, and BEK2), deep and broad customer knowledge (DCK1 to DCK3, and BCK1 to BEK4), CCSP (CCSP1 to CCSP6), service solution superiority (SS1 to SS9), market effectiveness (ME1 to ME4), and profitability (PR1 to PR5). The results of the descriptive statistics of these items presented in Table 6.4 indicate that the means ranged from 4.96 to 5.43 and SD ranged from 0.91 to 1.14. The calculated standard deviations indicate that the data points are spread over a large range of values (Niles 2014). Table 6.4 also presents the scores of the analysis of skewness of items in survey B, which ranged -0.71 to 0.06 and kurtosis which ranged -0.50 to 1.91. An examination of the results shows that there is no problem of normality in Survey B, as all skewness are in range of ±1 and all kurtosis are in the range of ±3.

The correlations between items in each construct were computed, but are not shown in Table 6.3. The analysis indicated that the correlation between items in the measure of deep and broad technical knowledge was between 0.89 and 0.91 respectively. The correlation between items in the measure of deep customer knowledge was between 0.87 to 0.91 and deep and the correlation between items in broad customer knowledge ranged between 0.94 and 0.96. The correlation between items in the measure of CCSP ranged between 0.30 and 0.90 and for service solution superiority ranged between 0.20 and 0.94. The correlation between items in the measure of market effectiveness ranged between 0.42 and 0.58 and for service solution superiority ranged between 0.74 and 0.95.

Table 6.4
Results of descriptive statistics - Survey B

Constructs		Mean	SD	Skewness	Kurtosis
Deep and broad technical knowledge					
DEK1	gathered detailed knowledge about technical issues in our industry.	5.39	.98	-0.20	0.07
DEK2	gathered detailed technical knowledge about our industry.	5.37	.94	-0.06	-0.35
BEK1	technical knowledge of our service industry is extensive (broad, wide-ranging).	5.43	.93	-0.01	-0.18
BEK3	service development expertise consists of knowledge from a variety of backgrounds.	5.38	.88	-0.05	0.08
Deep and broad customer knowledge					
BCK1	customer knowledge is extensive (broad, wide-ranging).	5.20	1.01	-0.02	-0.35
BCK2	customer knowledge consists of distinctive customer characteristics.	5.20	1.01	-0.21	0.10
BCK3	customer knowledge is broad covering many issues.	5.18	0.98	-0.06	-0.22
BCK4	acquired customer knowledge with different purchase profiles and purchase behaviour patterns.	5.15	0.89	-0.12	0.96

Continue: Table 6.4
Results of descriptive statistics - Survey B

Constructs		Mean	SD	Skewness	Kurtosis
DCK1	gathered a large amount of customer information to help identify our high-value customers.	5.25	0.96	-0.11	0.26
DCK2	established a thorough understanding of customers' lifetime value.	5.16	0.91	-0.05	0.36
DCK3	gathered detailed knowledge about the appropriate channels to reach customers.	5.19	0.92	-0.06	0.32
Customer cooperation in service provision (CCSP)					
CCSP1	engage customers to evaluate and align our service offering attributes to customer needs.	5.27	1.00	-0.11	-0.40
CCSP2	partner with the customer to make the customer's service experience more memorable.	5.26	1.05	-0.57	0.73
CCSP3	work together with our customers to produce offerings that mobilise them.	5.19	1.08	-0.42	0.44
CCSP4	make important technical decisions jointly with customers to enhance our relationship.	5.13	1.12	-0.46	0.41
CCSP5	jointly decide with customers on the goals and objectives for our relationship.	5.19	1.08	-0.32	0.19
CCSP6	jointly solve technical problems with customers.	5.14	1.14	-0.44	0.29
Service solution superiority					
SS1	ensuring customers' personal preferences are satisfied.	5.35	0.94	-0.15	-0.21
SS2	delivering quality services.	5.39	0.99	-0.11	-0.44
SS3	delivering services that are exactly what customers want.	5.42	1.00	-0.15	-0.48
SS4	delivering services with innovative performance features.	5.21	0.99	-0.26	0.00
SS5	provide our clients with services that offer unique benefits superior to those of competitors.	5.15	1.00	0.14	-0.50
SS6	solve clients' problems in very innovative ways.	4.99	0.95	0.06	0.15
SS7	provide innovative ideas to clients.	4.97	0.95	-0.31	0.49
SS8	present innovative solutions to our clients.	4.96	1.10	-0.46	0.30
SS9	seek out novel ways to tackle problems.	5.08	1.02	-0.20	0.21
Market effectiveness					
ME1	objectives in relation to market share growth relative to competitors…	5.13	0.96	-0.54	1.44
ME2	objectives in relation to growth in sales revenue…	5.14	0.95	-0.42	.33
ME3	objectives in relation to acquiring new customers…	5.18	1.02	-0.78	1.62
ME4	objectives in relation to increasing sales to existing customers…	5.19	1.00	-0.68	1.91
Profitability					
PR1	objectives in relation to enhancing firm profitability…	5.22	0.96	-0.27	0.32
PR2	objectives in relation to reaching financial goals …	5.19	1.00	-0.31	0.20
PR3	objectives in relation to enhancing sales of firms…	5.18	1.05	-0.58	1.31
PR4	objectives in relation to reaching sales objectives…	5.17	1.05	-0.51	1.21

As shown in Table 6.5, Survey C included items related to customer based brand equity (CBBE1 to CBBE5) and brand specific transformational leadership (BTFL1 to BTFL 15). The results of the descriptive statistics analysis of these items indicate that means ranged from 4.87 to 5.36 and SD ranged from 0.91 to 1.20. The standard deviations indicate that the data points are spread over a large range of values (Niles 2014). Table 6.5 also presents the scores of skewness which range from -0.71 to 0.46 and kurtosis range from -0.65 to 3.3. The analysis of this information shows that there is no problem of normality in Survey C, except BSTFL3. The kurtosis of this item is 3.303, which shows that the distribution of this item departed from normal distribution range of ±3. The correlation between items were computed and the results indicated that the correlations between items in the measure of customer based brand equity ranged between 0.37 and 0.92 and for BSTFL ranged between 0.18 and 0.93.

Table 6.5
Results of descriptive statistics - Survey C

Constructs		Mean	SD	Skewness	Kurtosis
Customer based brand equity					
CBBE1	they put long term cooperation with us before their short term profit.	5.24	0.91	0.24	-0.53
CBBE2	they are not doing business with another customer at our expense.	4.87	1.20	-0.46	-0.09
CBBE3	they are not collaborating with another customer at our determent.	4.91	1.17	-0.54	0.01
CBBE4	their current collaboration with us is a part of a long term relationship.	5.22	0.93	0.40	-0.65
CBBE5	they are willing to invest time and money to develop their relationship with us.	5.13	0.93	-0.12	0.14
Brand specific transformational leadership					
BSTFL1	re-examines critical assumptions of our brand promise to question whether they are appropriate.	5.23	0.92	-0.57	2.48
BSTFL2	seeks differing perspectives when interpreting our corporate brand value.	5.36	0.91	-0.51	2.65
BSTFL3	suggests a brand promoter's perspective of looking at how to complete assignments.	5.33	0.91	-0.71	3.30
BSTFL4	talks optimistically about the future of our corporate brand.	5.26	1.12	-0.50	0.67
BSTFL5	talks enthusiastically about what needs to be accomplished to strengthen our corporate brand.	5.22	1.11	-0.65	1.48
BSTFL6	articulates a compelling vision of our corporate brand.	5.27	1.11	-0.53	0.79
BSTFL7	goes beyond self-interest for the good of the corporate brand.	5.25	1.06	-0.48	1.25
BSTFL8	lives our corporate brand in ways that build my respect.	5.30	1.16	-0.70	1.22
BSTFL9	displays a sense of power and confidence when talking about our corporate brand	5.31	1.15	-0.49	0.57

Continue: Table 6.5
Results of descriptive statistics - Survey C

Constructs		Mean	SD	Skewness	Kurtosis
BSTFL10	specifies the importance of having a strong sense of our corporate brand.	5.32	1.14	-0.51	0.69
BSTFL11	talks about our most important brand values and his/her belief in them.	5.35	0.99	-0.53	2.05
BSTFL12	emphasises the importance of having a collective sense of our brand mission.	5.25	1.12	-0.50	0.73
BSTFL13	spends time teaching and coaching me in brand-related issues.	5.30	0.95	-0.30	0.49
BSTFL14	treats me as an individual rather than just one of many members of our company brand.	5.11	1.02	-0.69	0.97
BSTFL15	considers me as having different needs, abilities, and aspirations from other members of our company brand.	5.15	0.94	-0.60	0.87

As noted in Chapter Five, Section 5.4.2.1.2 stage two, Surveys A, B, and C include one item pertaining to the respondent's knowledge and one item regarding the respondent's confidence in responding to the items in the survey they completed. Interestingly, none of the respondents' scores were below 4 (Morgan et al. 2012), thus no cases were removed at this stage. As shown in Table 6.5, descriptive statistics of these items indicate that means ranged from 5.87 to 6.09, SD ranged from 0.81 to 0.89, skewness ranged from -0.05 to -0.85 and kurtosis ranged from -0.16 to -1.07, demonstrating normality of these items. In summary, the results of the preliminary analysis indicate that just one item in one construct (BSTFL) departed from normality.

Table 6.6
Descriptive statistic result of respondent's knowledge and confidence

Constructs		Mean	SD	Skewness	Kurtosis
Survey A					
AA	Knowledge quality	6.09	0.81	-0.85	0.95
RCA	Knowledge confidence	6.01	0.83	-.28	-0.89
Survey B					
AB	Knowledge quality	5.87	0.89	-0.20	-0.65
RCB	Knowledge confidence	5.94	0.82	-0.33	-0.16
Survey C					
AC	Knowledge quality	5.85	0.84	-0.23	-0.33
RCC	Knowledge confidence	5.91	0.82	-0.05	-1.07

6.3. Partial least squares (PLS)

In Chapter Five, Section 5.5.1, PLS was identified as the means to assess the adequacy and validity of the measurement model, as well as the predictive relevance of the "B2B Professional service firms service solutions model" (Figure 4.5, p. 139) and test

hypotheses presented in Chapter Four. The underlying reasons for the selection of PLS were discussed in Chapter Five, Section 5.5.1. Drawing on the work of O'Cass and Sok (2013), Heirati et al. (2013), Ringle et al. (2013), Slotegraaf and Atuahene-Gima (2011), Reinartz et al. (2009), Chen et al. (2009), O'Cass and Carlson (2010), and Bruhn et al. (2008), Smart PLS v2 was used to evaluate the adequacy and validity of ""B2B Professional service firms service solutions model" and hypothesis testing. First, this research aims to predict the extent that the service solution that is empowered by knowledge and CCSP has the capacity to improve customer based brand equity, market effectiveness, and profitability of the PSF. Second, this study developed measures for some constructs (e.g., service solution superiority). Third, PLS is appropriate for complex models with a smaller sample size. The research model of this study is complex and the sample size here is relatively small. Fourth, there are interaction effects in the proposed research model, and PLS is a suitable method when there are moderation relationships in the research model. Sixth, the preliminary analysis revealed that normality is an issue for one construct in the research model (Section 6.2.2). Based on the criteria of research model employing PLS is confirmed for the purpose of measuring the adequacy of the model and hypothesis testing.

To assess the outer measurement model, the PLS-SEM algorithm uses a two-stage approach. In the first stage, the latent constructs' scores are estimated and in the second stage the final estimates of the outer weights and loadings as well as the structural model's path coefficients are calculated (Hair et al. 2012). The first stage of PLS-SEM algorithm shows the outer measurement model and the second stage focuses on the inner structural model assessment. The outer measurement model shows the direction of items to the construct, while inner measurement shows the relationships between constructs. The assessment of the outer measurement model and the inner structural model relating to the theoretical framework are discussed in Sections 6.4 and 6.5, respectively.

6.4. Outer measurement model results

The quality of the measurement model was assessed based on assessments of reliability and validity (discriminant and convergent) (Hair et al. 2012). Construct reliability assessment routinely focuses on composite reliability, as an estimate of a construct's internal consistency (Hair et al. 2012). Composite reliability (CR) is considered more appropriate in PLS compared to Cronbach's alpha, because composite reliability does not assume that all indicators are equally reliable and prioritises indicators according to their reliability during model estimation (Hair et al. 2012).

Composite reliability assumes that all indicators are not equally reliable, instead prioritising indicators according to their reliability during model estimation (Hair et al. 2012). The composite reliability values above 0.70 are considered as satisfactory (Hair et al. 2012; Nunnally and Bernstein 1994). Similarly, the quality of each indicator is important and is assessed based on the factor loadings of the items, which should be higher than 0.50 (Hulland 1999). Factor loadings show the contribution of items in predicting the exogenous constructs and contribution in the path coefficients (Hair et al. 2012). Critical ratios (*t*-values) are considered as a part of model assessment for each item because it shows the value corresponding to a given significance level. Further, *t*-values for a two-tailed test is 1.65 (significance level = 0.10), 1.96 (significance level = 0.05), and 2.58 (significance level = 0.01) (Hair et al. 2012). The average variance extracted (AVE) explain the variance explained by latent variable and should be higher than 0.50. The item loadings, critical t-values, correlations, AVE, composite reliability of all constructs of interest are discussed in full in Sections 6.4.1 to 6.4.11.

6.4.1. Knowledge assimilation (Survey A)

The respondents completing survey A answered questions regarding knowledge assimilation. This measure was adopted from the work of De Luca and Atuahene-Gima (2007). The construct is measured using six items in the reflective fashion. As shown in Table 6.7, the loading of items KSA1 to KSA5 ranged from 0.84 to 0.71, which were greater than the benchmark value of 0.50 recommended by Hulland (1999), except item KSA6 in which had a factor loading of 0.32 less than the benchmark value of 0.5. This item as indicated in the research by De Luca and Atuahene-Gima (2007) also had the lowest factor loading compared to other items and was dropped by the authors. It is notable that knowledge assimilation is about integrating and distributing knowledge inside the firm, and KSA6 focused on using external experts, which was deemed not appropriate to measure the knowledge assimilation construct with the internal focus. Hair et al. (2011) suggest if an item does not contribute in the definition of the construct and has a factor load less than 0.40 should be removed. Thus, based on the suggestion by Hair et al. (2011) and referring to the work of De Luca and Atuahene-Gima (2007) this item was removed from further analysis.

The bootstrapped t-values for these items ranged from 2.13 to 4.59, which are greater than the benchmark value of ±1.96 recommended by Hair et al. (2011). Further, the composite reliability of knowledge assimilation was 0.89 greater than 0.70, indicating satisfactory reliability based on the benchmark suggested by Hair et al. (2011). Moreover, the knowledge assimilation's AVE was 0.62 higher than the benchmark of

0.50 suggested by Hair et al. (2011). the results for AVE and CR reported in Table 6.7 is after removing the item 6.

Table 6.7
Results of outer-measurement model of knowledge assimilation

Construct		Loadings	t-values
Knowledge assimilation	**(AVE= 0.62, CR= 0.89)**		
Our firm uses…			
KSA1	regular formal reports and memos that summarise learning.	0.81	2.79
KSA2	information sharing meetings as a communication tool.	0.84	4.42
KSA3	face-to-face discussions by cross-functional teams.	0.85	4.59
KSA4	formal analysis of failing service development projects.	0.73	3.30
KSA5	formal analysis of successful service development projects.	0.71	3.70
KSA6	experts and consultants to synthesise knowledge.	0.32	2.13

Note: *Seven-point Likert Scale: 1 "**Strongly disagree**" to 7 "**Strongly Agree**".*

6.4.2. Employee brand building behaviour (Survey A)

The respondents completing survey A also answered questions regarding employee brand building behaviour. The measure was developed based on the work of Vey and Campbell (2009) and Morhart et al. (2009). The construct was measured in the formative fashion. As shown in Table 6.8, the factor loadings of all items were greater than the benchmark value of 0.5, ranging from 0.62 to 0.89. The bootstrapped t-values for these items were greater than the benchmark value of ±1.96, ranging from 2.52 to 9.72. Further, the composite reliability was satisfactory at 0.90, which is greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE is 0.61, which is higher than the benchmark of 0.50 suggested by Hair et al. (2011).

Table 6.8
Results of outer-measurement model of employee brand building behaviour

Construct		Loadings	t-values
Employee brand building behaviour	**(AVE= 0.61 CR= 0.90)**		
EXBB1	tell their supervisor about ways to strengthen our brand image.	0.62	2.52
EXBB2	make constructive suggestions on how to improve our customers' brand experience.	0.67	3.25
EXBB3	share useful ideas on how to improve our brand's performance.	0.66	3.07
EIBB1	pay attention to ensure that their actions in customer contact situation are not at odds with our standards for brand-adequate behaviour.	0.89	9.72
EIBB2	adhere to our standards for brand-congruent behaviour	0.89	9.24
EIBB3	adhere to our standards of behaviour that are consistent with our brand image.	0.88	9.19

Note: *Seven-point Likert Scale: 1 "**Never**" to 7 "**To a very large extent**".*

6.4.3. Deep and broad technical knowledge (Survey B)

The respondents completing survey B answered questions regarding deep and broad technical knowledge. Both deep and broad technical knowledge were measured using two items each based on the work of Boh et al. (2013), Zhou and Li (2012), and Grant (1996). As shown in Table 6.9, the factor loadings ranged from 0.93 to 0.95 and were greater than the benchmark value of 0.50 recommended by Hulland (1999). The bootstrapped t-values for these items were greater than the benchmark value of ±1.96 recommended by Hair et al. (2011), ranging from 10.63 to 22.54. Further, the composite reliability for both deep and broad technical knowledge is 0.95, which was satisfactory as they are greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE for deep and broad technical knowledge is 0.91 and 0.90 respectively, which is higher than the benchmark of 0.50 suggested by Hair et al. (2011).

Table 6.9
Results of outer-measurement model of broad and deep technical knowledge

Construct		Loadings	t-values
Broad technical knowledge (AVE=0.91, CR=0.95)			
BEK1	gathered detailed knowledge about technical issues in our industry.	0.95	21.86
BEK2	gathered detailed technical knowledge about our industry.	0.94	22.54
Deep technical knowledge (AVE=0.90, CR=0.95)			
DEK1	gathered detailed knowledge about technical issues in our industry.	0.94	12.23
DEK2	gathered detailed technical knowledge about our industry.	0.93	10.63

Note: *Seven-point Likert Scale: 1 "**Strongly disagree**" to 7 "**Strongly Agree**".*

6.4.4. Deep and broad customer knowledge (Survey B)

The respondents completing survey B answered questions regarding deep and broad customer knowledge. Both constructs of deep and broad customer knowledge were measured using four and three items respectively. This measure was adapted from the work of Arnold et al (2010) and De Luca and Atuahene-Gima (2007). The results shown in Table 6.10 indicate that the factor loadings in both constructs were greater than the benchmark value of 0.50 recommended by Hulland (1999) and ranged from 0.70 to 0.96. The bootstrapped t-values for these items were greater than the benchmark value of ±1.96 recommended by Hair et al. (2011), ranging from 7.99 to 24.77. Further, the composite reliability for both deep and broad customer knowledge are 0.93 and 0.97 respectively, which is satisfactory as they are greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE for deep and broad knowledge is 0.90 and 0.79 respectively, which is higher than the benchmark of 0.50 suggested by Hair et al. (2011).

Table 6.10
Results of outer-measurement model of broad and deep customer knowledge

Construct		Loadings	t-values
Broad customer knowledge (AVE=0. 79, CR=0. 93)			
BCK1	customer knowledge is extensive (broad, wide-ranging).	0.94	19.95
BCK2	customer knowledge consists of distinctive customer characteristics.	0.93	24.77
BCK3	customer knowledge is broad covering many issues.	0.93	20.29
BCK4	acquired customer knowledge with different purchase profiles and purchase behaviour patterns	0.70	7.99
Deep customer knowledge (AVE=0.90, CR=0.97)			
DCK1	gathered a large amount of customer information to help identify our high-value customers.	0.95	20.62
DCK2	established a thorough understanding of customers' lifetime value.	0.96	20.57
DCK3	gathered detailed knowledge about the appropriate channels to reach customers.	0.95	19.11

Note: *Seven-point Likert Scale: 1 "**Strongly disagree**" to 7 "**Strongly Agree**".*

6.4.5. CCSP (Survey B)

The respondents completing survey B answered questions regarding CCSP. The construct is measured using six items based on the work of O'Cass and Ngo (2010), Agarwal and Selen (2009), and Menon et al. (2005). As shown in Table 6.11, the factor loadings for all items were greater than the benchmark value of 0.5 recommended by Hulland (1999) and ranged from 0.56 to 0.94. The bootstrapped t-values were also greater than the benchmark value of ±1.96 recommended by Hair et al. (2011), ranging from 6.07 to 13.36. Further, the composite reliability was satisfactory at 0.92, which is greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE for this construct is 0.76 (> 0.50).

Table 6.11
Results of outer-measurement model of CCSP

Construct		Loadings	t-values
CCSP	**(AVE=0. 76, CR=0. 92)**		
CCSP 1	engage customers to evaluate and align our service offering attributes to customer needs.	0.56	6.50
CCSP 2	partner with the customer to make the customer's service experience more memorable.	0.92	10.12
CCSP 3	work together with our customers to produce offerings that mobilise them.	0.94	13.36
CCSP 4	make important technical decisions jointly with customers to enhance our relationship.	0.92	8.76
CCSP 5	jointly decide with customers on the goals and objectives for our relationship.	0.93	9.98
CCSP 6	jointly solve technical problems with customers.	0.88	6.07

Note: *Seven-point Likert Scale: 1 "**To a very little extent**" to 7 "**To a very large extent**".*

6.4.6. Service solution superiority (Survey B)

The respondents completing survey B answered questions regarding service solution superiority. The construct is measured using nine items in the reflective fashion based on the work of Tuli et al. (2007), O'Cass and Ngo (2010), Hogan et al. (2011), and Aarikka-Stenroos and Jaakkola (2012). The results presented in Table 6.12 show that the factor loadings for all items ranged from 0.53 to 0.84, which were greater than the benchmark value of 0.50 recommended by Hulland (1999). The bootstrapped t-values for these items were greater than the benchmark value of ±1.96 recommended by Hair et al. (2011), ranging from 3.82 to 14.55. Further, the composite reliability was satisfactory at 0.91, which is greater than 0.7, the benchmark suggested by Hair et al. (2011). Moreover, the AVE is 0.55 (> 0.50).

Table 6.12
Results of outer-measurement model of service solution

Construct		Loadings	t-values
Service solution superiority	**(AVE= 0.55, CR=0. 91)**		
SS1	ensuring customers' personal preferences are satisfied.	0.77	8.58
SS2	delivering quality services.	0.84	9.04
SS3	delivering services that are exactly what customers want.	0.82	9.22
SS4	delivering services with innovative performance features.	0.53	7.59
SS5	provide our clients with services that offer unique benefits superior to those of competitors.	0.75	13.9
SS6	solve clients' problems in very innovative ways.	0.71	8.75
SS7	provide innovative ideas to clients.	0.75	9.90
SS8	present innovative solutions to our clients.	0.65	3.82
SS9	seek out novel ways to tackle problems.	0.80	14.55

Note: *Seven-point Likert Scale: 1 "**Strongly disagree**" to 7 "**Strongly Agree**".*

6.4.7. Market effectiveness (Survey B)

The respondents completing survey B answered questions regarding market effectiveness. Market effectiveness was measured using four items adopted from the work of Vorhies and Morgan (2005) and operationalised in the reflective fashion. As shown in Table 6.13, the factor loadings of all items were greater than the benchmark value of 0.50 recommended by Hulland (1999), ranging from 0.70 to 0.78. The bootstrapped t-values for these items were greater than the benchmark value of ±1.96 recommended by Hair et al. (2011), ranging from 5.05 to 8.25. Further, the composite reliability was satisfactory at 0.95, which is greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE for this construct is 0.88 (> 0.50).

Table 6.13
Results of outer-measurement model of market effectiveness

Construct		Loadings	t-values
Market effectiveness	**(AVE=0. 88, CR=0. 95)**		
ME1	objectives in relation to market share growth relative to competitors…	0.78	7.43
ME2	objectives in relation to growth in sales revenue…	0.78	8.25
ME3	objectives in relation to acquiring new customers…	0.78	7.61
ME4	objectives in relation to increasing sales to existing customers…	0.70	5.05

Note: *Seven-point Likert Scale: 1 "**Not at all**" to 7 "**Extensively**".*

6.4.8. Profitability (Survey B)

The respondents completing survey B answered questions regarding profitability. Profitability was measured using five items adopted from the work of Vorhies and Morgan (2005) and operationalised in the reflective fashion. As presented in Table 6.14, the factor loadings of items ranged from 0.91 to 0.96, which were greater than the benchmark value of 0.50 recommended by Hulland (1999). The bootstrapped t-values for these items were greater than the benchmark value of ±1.96 recommended by Hair et al. (2011), ranging from 6.26 to 7.48. Further, the composite reliability was satisfactory at 0.93, which was greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE for this construct was 0.73 (> 0.50).

Table 6.14
Results of outer-measurement model of profitability

Construct		Loadings	t-values
Profitability	**(AVE=0. 73, CR=0. 93)**		
PRF1	objectives in relation to enhancing firm profitability…	0.91	6.26
PRF2	objectives in relation to reaching financial goals …	0.94	7.14
PRF3	objectives in relation to enhancing sales of firms…	0.94	6.77
PRF4	objectives in relation to reaching sales objectives…	0.96	7.48

Note: *Seven-point Likert Scale: 1 "**Not at all**" to 7 "**Extensively**".*

6.4.9. Customer based brand equity (Survey C)

The respondents completing survey C answered questions regarding customer based brand equity. The construct was measured using five items adopted from the work of Walter and Ritter (2003) and operationalised in the reflective fashion. As shown in Table 6.15, the factor loadings for all items ranged from 0.72 to 0.90, which were greater than the benchmark value of 0.50 recommended by Hulland (1999). The bootstrapped t-values for these items were greater than the benchmark value of ±1.96 recommended by Hair et al. (2011), ranging from 3.27 to 5.28. Further, the composite reliability was satisfactory at 0.91, which is greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE for this construct was 0.69 (> 0.50).

Table 6.15
Results of outer-measurement model of customer based brand equity

Construct		Loadings	t-values
Customer based brand equity (AVE=0. 68, CR=0. 91)			
CBBE1	they put long term cooperation with us before their short term profit.	0.88	4.75
CBBE2	they are not doing business with another customer at our expense.	0.72	3.78
CBBE3	they are not collaborating with another customer at our determent.	0.72	3.27
CBBE4	their current collaboration with us is a part of a long term relationship.	0.89	4.05
CBBE5	they are willing to invest time and money to develop their relationship with us.	0.90	5.28

Note: *Seven-point Likert Scale: 1 "**Strongly disagree**" to 7 "**Strongly Agree**".*

6.4.10. Brand specific transformational leadership (Survey C)

The respondents completing survey C answered questions regarding BSTFL. Referring to the conceptualisation of transformational brand leadership proposed by Morhart et al. (2009), brand specific transformational leadership was measured as homogeneous item parcels in the form of reflective indicators. As shown in Table 6.16, the factor loadings for all parcels range from 0.68 to 0.93. The bootstrapped t-values for items ranged from 9.82 to 20.69, which were greater than the benchmark value of ±1.96 recommended by Hair et al. (2011). Further, the composite reliability is satisfactory at 0.92, which is greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE for this construct is 0.79 (> 0.50).

Table 6.16
Results of outer-measurement model of Brand specific transformational leadership

Construct		Loadings	t-values
Brand specific transformational leadership (AVE= 0.70, CR=0. 92)			
BSTFL1	Intellectual Stimulation	0.84	20.69
BSTFL2	Inspirational Motivation	0.80	19.50
BSTFL3	Idealised Influence (Attributes)	0.91	16.30
BSTFL4	Idealised Influence (Behaviours)	0.93	15.31
BSTFL5	Individual Consideration	0.68	9.82

Note: *Seven-point Likert Scale: 1 "**Not at all**" to 7 "**Frequently if not always**".*

6.4.11. Control variables (Survey A)

As discussed in Chapter Five, Section 5.4.2.1.2, this study used environmental turbulence as a control variable. Further, the firm size and the service sector were also used as control variables. The first respondent answered questions related to control variables located in Survey A. The environmental turbulence construct was measured using six items in the reflective fashion. As shown in Table 6.17, the factor loadings of all items ranged from 0.5 to 0.92 and were greater than the benchmark value of 0.50

recommended by Hulland (1999). The bootstrapped t-values for these items ranged from 0.49 to 2.39, which were greater than the benchmark value of ±1.96 recommended by Hair et al. (2011). Further, the composite reliability was good at 0.96, which is greater than 0.70, the benchmark suggested by Hair et al. (2011). Moreover, the AVE for this construct was 0.86 (> 0.50).

Table 6.17
Results of outer-measurement model of environment turbulence

Construct		Loadings	t-values
Environment turbulence (AVE=0. 86, CR=0. 96)			
ETu1	the technological environment was very complex.	0.88	6.98
ETu2	predicting the actions of competitors was extremely difficult	0.70	4.48
ETu3	customers' needs were highly unpredictable	0.92	7.66
ETu4	technological changes were very unpredictable.	0.90	6.32
ETu5	the market environment was very dynamic	0.84	6.22
ETu6	the market environment was highly competitive.	0.50	2.12

Note: *Seven-point Likert Scale: 1 "**Strongly disagree**" to 7 "**Strongly Agree**".*

To use firm size in the model as a control variable, the logarithm of the number of employees was used to prevent skewness (De Luca and Atuahene-Gima 2007). Further, the specific service sector that the PSF operated within was also used as a control variable. To measure the effect of the service sector, this study followed the procedure proposed by O'Cass and Ngo (2010) and Leiponen and Helfat (2010) and applied dummy-coded approach (0, 1). The PSF was coded based on the service sector they operated within. To code service sector, 10 dummy variables were created. In each cell for each dummy variable following the sectors identified in Section 6.2.1, 1 was used if it is that sector and a 0 if it is some other sector (Leiponen and Helfat 2010). Ten dummy variables were created, because one sector was used as the comparison sector (Hair et al. 2008). The comparison sector is the one that had the most effect. Comparison sector here is test and inspection, because this sector was one of the most dominant service sectors in the sample, thus all other effects from the dummies were relative to the effect of the comparison.

6.5. Validity assessment

Validity assessment is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world. The validity of a measurement is considered to be the degree to which the measurement measures what it claims to measure. Jacob (2006) argues the validity of the model should be assessed through convergent validity and discriminant validity.

6.5.1. Convergent validity

Convergent validity is representative of the degree that one item is associated with its respective constructs (Hulland 1999; O'Cass et al. 2012). The assessment of convergent validity is based on two criteria. First, Nunnally (1978) suggests that the convergent validity of an outer measurement model is satisfactory when composite reliability of all constructs within a model exceed 0.70 of the benchmark. Second, Fornell and Larcker (1981) suggest that the convergent validity of an outer-measurement model is satisfactory when AVE of all constructs within a model exceeds 0.50 of the benchmark, meaning that the construct explain more than half of its items' variance (O'Cass et al. 2012; Hair et al. 2011). The average variance extracted (AVE) is the measure of convergent validity. The value of AVE should be 0.50 and higher to indicate a sufficient degree of convergent validity (Hair et al. 2012). The result presented in Tables 6.7 to 6.16 shows that composite reliability of all constructs ranged from 0.89 to 0.97 and the AVEs for all constructs ranged from 0.55 to 0.91, which are greater than benchmark suggested for satisfactory convergent validity (O'Cass et al. 2012; Hair et al. 2011).

6.5.2. Discriminant validity

Discriminant validity refers to the degree that items of a construct are different from items of other constructs within a model (Hair et al. 2012). Discriminant validity tests whether the constructs that should have no relationship, do in fact, not have any relationship (Lehman 1998). For the assessment of discriminant validity, two approaches have been suggested, Fornell-Larcker criterion and cross loadings criterion. The Fornell-Larcker criterion (Fornell and Larcker 1981) postulates that a latent construct shares more variance with its assigned indicators than with another latent variable in the structural model. In statistical terms, the AVE of each latent construct should be greater than the latent construct's highest squared correlation with any other latent construct. The cross loading criterion is usually a bit more liberal and assert that an indicator's loading with its associated latent construct should be higher than its loadings with all the remaining constructs (e.g., the cross loadings) (Hair et al. 2012). Discriminant validity refers to the degree that items of a construct are different from items of other constructs within a model (Hair et al. 2012). The test for discriminant validity involves several steps. First, the average variance extracted (AVE) indicates the amount of variance captured by the construct in relation to the variance due to measurement error. Second, the comparison of the square root of the AVE with the

correlations among constructs should exceed the correlation between components (Fornell and Larcker, 1981).

To examine the discriminant validity, the procedure proposed by Gray and Meister (2004), Slotegraaf and Dickson (2004), Carlson and O'Cass (2011) was followed. The square root of AVE was calculated and compared to the correlations between constructs. As evident in Table 6.18, the largest correlation was between market effectiveness and profitability (0.78) and the lowest correlation was between service sector and brand specific transformational leadership (0.00). The comparison of the square root of the AVE (e.g., diagonal in Table 6.17) with the correlations among constructs (e.g., off-diagonal elements) revealed that the square root of the AVEs for each component was greater than the correlation between components. This supports discriminant validity, which required that the diagonal elements should be greater than the off-diagonal elements (Heirati et al. 2013; O'Cass and Sok 2013; Fornell and Larcker 1981). These findings provided evidence of discriminant validity among the components and the constructs.

Moreover, O'Cass (2002) argues that if all individual correlations are smaller than the respective composite reliabilities satisfactory evidence of discriminant validity exists. As shown in Table 6.18, the composite reliabilities of all constructs range from 0.89 to 0.96, which are greater than individual correlations, which is further evidence of discriminant validity. Moreover, cross loading tests shows that all indicators' loadings with its associated latent construct were higher than its loadings with all the remaining constructs, providing evidence of discriminant validity.

Table 6.18
Results for evidence of discriminant validity for the constructs

	CR	AVE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	0.93	0.79	**(0.88)**														
2	0.95	0.91	0.58	**(0.95)**													
3	0.91	0.68	0.33	0.29	**(0.82)**												
4	0.92	0.59	0.51	0.38	0.27	**(0.76)**											
5	0.95	0.90	0.57	0.38	0.18	0.40	**(0.94)**										
6	0.95	0.91	0.51	0.38	0.21	0.47	0.38	**(0.95)**									
7	0.90	0.61	0.25	0.29	0.08	0.28	0.28	0.24	**(0.78)**								
8	0.89	0.62	0.32	0.43	0.12	0.30	0.27	0.28	0.45	**(0.78)**							
9	0.95	0.88	0.57	0.36	0.28	0.41	0.55	0.33	0.25	0.20	**(0.93)**						
10	0.93	0.73	0.50	0.35	0.25	0.36	0.46	0.34	0.28	0.26	0.78	**(0.85)**					
11	0.91	0.55	0.58	0.55	0.36	0.50	0.50	0.59	0.36	0.40	0.55	0.52	**(0.74)**				
12	0.92	0.70	0.55	0.49	0.35	0.55	0.47	0.40	0.48	0.42	0.55	0.50	0.64	**(0.83)**			
13	0.96	0.86	0.17	0.23	0.15	0.30	0.10	0.25	0.28	0.36	0.04	0.01	0.24	0.19	**(0.92)**		
14	-	-	0.23	0.20	0.03	0.17	0.18	0.21	0.04	0.45	0.25	0.28	0.36	0.48	0.17	**(1.00)**	
15	-	-	-0.07	-0.04	-0.30	0.00	-0.00	0.02	0.10	-0.00	0.12	-0.14	-0.10	-0.08	-0.01	0.08	**(1.00)**

Note:
CR is composite reliability,
Diagonal entries are the square root of AVE; others are correlation coefficients.
Numbers are indicator of constructs: 1- Broad customer knowledge, 2- Broad technical knowledge, 3- Customer based brand equity, 4- CCSP, 5- Deep customer knowledge, 6- Deep technical knowledge, 7- Employee brand building behaviour, 8- Knowledge assimilation, 9- Market effectiveness, 10- Profitability, 11- Service solution, and 12- Brand specific transformational leadership, 13- Technological turbulence, 14- Firm size, 15- Service sector.
$\rho < 0.01$

6.6. Common method bias

Common method variance is a potential problem in social science research, because it threatens the validity of the conclusions about the relationships between constructs (Podsakoff et al. 2003). Common method variance is measurement error, which is related to the measurement method, rather than to the constructs the measures represents (Podsakoff et al. 2003). Common method variance occurs when a single respondent answers all items about constructs of interest (Podsakoff et al. 2003). To address the risk of common method variance, Chang et al. (2010) suggest several approaches such as; (1) collecting data from different sources; (2) utilize mixing questions and question formats; (3) use complex research models with interactions and non-linear effects; and (4) use one of the several statistical methods to detect and control for possible common method variance (p. 179). This research adopted all of these approaches to decrease the risk of common method variance.

The first approach adopted here to decrease common method bias was using multiple informants (Zhou and Li 2012; Arnold et al. 2011; Slotegraaf and Atuahene-Gima 2011; Vorhies et al. 2011; Chang et al. 2010; Damanpour et al. 2009), as common method variance occurs when a single respondent answers all items about constructs of interest (Podsakoff et al. 2003). In this study, three different respondents completed the three surveys containing different constructs. This helped reduce the probability of common method bias. Further; as different respondent answers different constructs involved in hypotheses the effect of common method is decreased (Arnold et al. 2011). However, to ensure common method variance was not an issue, this research employed two different statistical approaches to assess common method variance. First, Harman's single factor test (Podsakoff et al. 2003) and second, the marker variable test were undertaken (Rusetski et al. 2014; O'Cass and Siahtiri 2013; Lindell and Whitney 2001).

To undertake the test using Harman's single factor approach, factor analysis is applied and all items related to all constructs of interest were entered in the analysis (Lau et al., 2010). Harman's one-factor tests did not produce a single factor, which is evidence against the existence of a single source of variance that is shared among the constructs (Podsakoff and Organ 1986). There were sixteen factors extracted from a factor analysis of all items with eigenvalues greater than 1, with variance explained 84.9%. The first factor explained 33% of the variability in the data. As one factor was not presented and as the majority of the variance was not accounted for by one construct (factor), it could be concluded that common method variance was not a problem (Lau et al., 2010).

In regards to the marker variable test, the procedure recommended by Lindell and Whitney (2001) and adopted by O'Cass and Ngo (2012) and O'Cass and Siahtiri

(2013) was undertaken. Lindell and Whitney (2001) suggest that a variable that has a small correlation with the endogenous construct should be identified as a marker variable. This correlation is then used to partial out the effect from other correlations to test the degree of any common method bias that may exist. This study used two a-priori item as marker variables (see Section 5.4.2.1.2.2 in Chapter Five: (1) I like the company Microsoft: $r_M = 0.05$, $\rho = 0.5$ and (2) My life is enjoyable: $r_M = 0.03$, $\rho = 0.42$). The mean change in correlations of the key constructs ($r_U – r_A$) when partialling out the effect of r_M for the first marker variable was 0.05 and for the second marker variable was 0.03, providing evidence that common-method bias was not an issue.

6.7. Inner structural model results

Bagozzi and Yi (2012) argue that in the context of SEM prediction relates to a situation where a theory leads to the forecast of some relevant outcome. The theory was developed in Chapter Four and the relationships between constructs of interest were predicted and hypotheses were developed. Chapter Four discussed the predicted relationship between constructs in a full detailed and the predicted relationships are reported here. The examination of the structural model involves the predictive relevance of individual paths and the predictive relevance of the structural model (Hair et al. 2011). The predictive relevance of individual paths indicates the strength and significance of associations between constructs. The strength and significance of hypothesised paths were measured using Smart PLS v2. For all path analysis, the path strength is β coefficient and measured via calculation the path weight (Henseler et al. 2009). The path significance is measured by computing t-values on the basis of a sampling with replacement or bootstrapping (Chin et al. 2003). As PLS does not presume that the data are normally distributed, repeated random sampling with replacement from the original sample to create a bootstrap sample was employed to obtain standard errors and t-values for hypothesis testing (Hair et al. 2011). The bootstrap sample enables the estimated coefficients in PLS-SEM to be tested for their significance (Henseler et al. 2009).

The result of the predicted relationship between construct are discussed based on the type of hypothesised relationship between constructs in Sections 6.6.1, 6.6.2, and 6.6.3. The direct relationships between constructs are explained in Section 6.6.1, Section 6.6.2 open up the curvilinear relationships, and finally Section 6.6.3 explains the moderation effect between constructs.

6.7.1. Hypotheses with direct relationships (H_1, H_2, $H_{5a\&b}$, and $H_{7\ a,\ b\ \&\ c}$)

To measure the predicted relationships among constructs of interest the approach used by Slotegraaf and Atuahene-Gima (2011) was adopted. Table 6.20 presents the results of testing hypotheses H 1, H 2, H5 a, b, and H7 a, b, & c. Hypothesis 1 stated that brand specific transformational leadership positively related to employee brand building behaviour. The result confirms hypothesis 1. The path coefficient for the relationship between brand specific transformational leadership and employee brand building behaviour is positive with β = 0.49 (SD = 0.09). This positive relationship is significant as the t-value is 5.31 (> 1.96). Hypothesis 2 stated that employee brand building behaviour has a significant, positive relationship with CCSP. The result confirms hypothesis 2. The path coefficient for the relationship between employee brand building behaviour and CCSP is positive with β = 0.20 (SD = 0.07). This relationship is significant because the t-value for this path is 2.63 (> 1.96). As shown in Table 6.20, brand specific transformational leadership explains 25% of the variance of employee brand building behaviour and employee brand building behaviour explains 20% of the variance of CCSP. Both of these R^2s are over the benchmark of 0.10 (Falk and Miller, 1992) demonstrating a good level of predictiveness.

Hypothesis 5a predicted that deep customer knowledge is positively related to CCSP and hypothesis 5b predicted that broad customer knowledge is positively related to CCSP. The findings presented in Table 6.20 for these two hypotheses support the predicted relationships for both hypotheses 5a and 5b. As shown in Table 6.20, the path coefficient for the relationship between deep customer knowledge and CCSP is positive with β= 0.21 (SD = 0.08). The t-value for this relationship is 2.61 (> 1.96), which supports the significance of the proposed relationship. These findings support hypothesis 5a. Further, hypothesis 5b is supported. The path coefficient for the relationship between broad customer knowledge and CCSP is positive with β = 0.43 (SD = 0.07), and significant as the t-value is 5.89 (> 1.96). As shown in Table 6.20, deep and broad customer knowledge explains 28% and 37% of variance of CCSP respectively. The computed R^2 values for these two paths are above the benchmark of 0.10 (Falk and Miller, 1992) demonstrating good acceptable level of predictiveness of predictor variables.

Hypotheses 7a, 7b, and 7c predicted that service solution superiority has a positive relationship with the customer based brand equity and firm based brand equity in the form of market effectiveness, and firm profitability. The findings presented in Table 6.20 shows the path coefficient for the relationship between service solution superiority and customer based brand equity is positive and significant with β = 0.33 (SD = 0.07) and t-value = 3.72 (> 1.96). Further, analysis of the results in Table 6.20 shows

the path coefficient for the relationship between service solution superiority and market effectiveness is positive and significant as β = 0.56 (SD = 0.06), and t-value is 6.66 (> 1.96). Moreover, an analysis of the results reported in Table 6.20 confirms the positive and significant relationship between service solution superiority and profitability. As shown in Table 6.20, the path coefficient for the relationship between service solution superiority and profitability is positive and significant with β = 0.42 (SD = 0.05), and t-value= 5.57 (> 1.96).

Regarding the R^2 values, service solution explains 24% of variance of customer based brand equity, and 33% of variance of market effectiveness, and 20% of profitability, which all of them are above the benchmark of 0.10 (Falk and Miller, 1992) demonstrating good predictiveness.

Table 6.19
Results of direct effect relationships tests

Predictor variables		Predicted variables	β	t-value	*SD*	R^2
H1	Brand specific transformational leadership	Employee brand building behaviour	0.49	5.31	0.09	0.25
H2	Employee brand building behaviour	CCSP	0.20	2.63	0.07	0.20
H5a	Deep customer knowledge	CCSP	0.21	2.61	0.08	0.28
H5b	Broad customer knowledge	CCSP	0.43	5.89	0.07	0.37
H7a	Service solution superiority	Customer based brand equity	0.33	3.72	0.07	0.24
H7b		Market effectiveness	0.56	6.66	0.06	0.33
H7c		Profitability	0.42	5.57	0.05	0.20

Note: the result presented in Table 6.20 is after considering control variable in equations.
SD (standard deviation) for all relationships ranged from 0.05 to 0.09, demonstrating good normality of data.

6.7.2. Hypotheses for U-shaped relationships (H3, H4a, and H4b)

In Chapter Four, three curvilinear relationships were predicted, hypotheses 3, 4a, and 4b predicted inverted U-shaped relationships. Hypothesis 3 posited an inverted U-shaped relationship between CCSP and service solution superiority. H4a posited an inverted U-shaped relationship between deep technical knowledge and service solution superiority and Hypothesis 4b posited an inverted U-shaped relationship between broad technical knowledge and service solution superiority.

To assess the inverted U-shaped relationships this study adopted the procedure proposed by Slotegraaf and Atuahene-Gima (2011) and Ping (1995) and modelled the quadratic terms to test Hypothesis 3, 4a, and b. A significant positive coefficient of the linear term in these models would demonstrate a predominantly positive relationship, and a significant negative coefficient would demonstrate a predominantly negative relationship (Kreiser et al. 2013). A significant and positive coefficient of the quadratic term would demonstrate a U-shaped relationship, and a significant and negative coefficient of the quadratic term would demonstrate an inverted U-shaped relationship.

Hypothesis 3 posited an inverted U-shaped relationship between CCSP and service solution superiority. To test this hypothesis the quadratic term of CCSP was created. As shown in Table 6.21, the quadratic term for CCSP is positive with a path coefficient of 0.10 and a significant t-value of 2.44 (> 1.96). This result supports a positive U-shaped relationship. Therefore, H3 is partially supported, because the U-shape is positive not negative.

Hypothesis 4a posited an inverted U-shaped relationship between deep technical knowledge and service solution superiority, As shown in Table 6.21, the path coefficient of the quadratic term of deep technical knowledge is 0.13 and significant with t-value of 3.07 (> 1.96), illustrating positive U-shaped relationship. Therefore hypothesis 4a is partially supported, because the U-shape is positive not negative. Further, As shown in Table 6.21, the path coefficient of the quadratic term of broad technical knowledge is 0.23 and significant with t-value of 5.45 (> 1.96), illustrating positive U-shaped relationship. Therefore, hypothesis 4a is partially supported, because the U-shape is positive not negative.

Table 6.20
Results for U-shaped relationships

Predictor variables		Predicted variables	β		t-value		R^2	
			Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
H3	CCSP	Superior service solutions	-0.70	0.10	-1.50	2.44	0.25	0.28
H4b	Deep technical knowledge	Superior service solutions	-1.02	0.13	-2.10	3.07	0.33	0.37
H4b	Broad technical knowledge	Superior service solutions	-2.08	0.23	-4.40	5.45	0.30	0.41

6.7.3. Hypotheses for moderation relationships (H6a and H6b)

Hypothesis 6a predicted that knowledge assimilation is more beneficial in providing superior service solutions when the PSF possess broad technical knowledge than when possessing deep technical knowledge. Table 6.22 shows that the moderation effect of knowledge assimilation on the relationship between broad technical knowledge and service solution superiority is positive and significant (ß = 0.18 and t-value= 1.96). However, the effect of knowledge assimilation on the relationship between deep technical knowledge and service solution superiority is not significant (ß = 0.03 and t-value=0.32). To check the robustness of the results further analysis was undertaken and the moderation effect sizes were calculated. To measure the effect size, the procedure proposed by Chin et al. (2003) was applied. To measure the effect size, f^2 was calculated using the formula proposed by Chin et al (2003): R^2 (interaction effect model) - R^2 (main effect model)] /[1 - R^2 (main effect model)]. The f^2= 0.02 is considered as small, 0.15 is medium, and 0.35 is considered as high effect. The f^2 for the relationship between broad technical knowledge and service solution superiority is 0.04 which is identified as small size. The f^2 for the relationship between deep technical knowledge and service solution superiority is 0.01 which is identified as no effect. The comparison of f^2 for both relationships shows that the effect of knowledge assimilation is more beneficial, when the PSF possess broad technical knowledge and service solution superiority, thus the results support hypothesis 6a.

Table 6.21
Results of moderation effect

	Predictor variables	Predictive variables	β	t-values	R^2 before interaction	R^2 after interaction
H6a	Broad technical knowledge × knowledge assimilation	Service solution superiority	0.18	1.96	0.33	0.36
			f^2 = 0.04, small effect			
	Deep technical knowledge × knowledge assimilation	Superior service solutions	0.03	0.32	0.42	0.43
			f^2 = 0.01, No effect			
H6b	Broad customer knowledge × knowledge assimilation	CCSP	0.15	2.02	0.41	0.43
			f^2 = 0.03, small effect			
	Deep customer knowledge × knowledge assimilation	CCSP	0.11	0.66	0.21	0.23
			f^2 = 0.01, No effect			

f2 = [R2 (interaction effect model) - R2 (main effect model)] /[1 - R2 (main effect model)]. (Small: 0.02, Medium: 0.15, High: 0.35)

Hypotheses 6b predicted that knowledge assimilation is more beneficial in CCSP, when the PSF possess broad customer knowledge than when possessing deep customer knowledge. To test the moderation effect the procedure proposed by Chin et al. (2003) was applied. Table 6.22 shows that the moderation effect of knowledge assimilation on the relationship between broad customer knowledge and CCSP is positive and significant (ß = 0.15 and t-value = 2.02). However, the moderation effect of knowledge assimilation on the relationship between deep customer knowledge and CCSP is not significant (ß = 0.11 and t-value = 0.66). Therefore, the results support hypothesis 6b. To check the robustness of the result further analysis was undertaken and the moderation effect sizes were calculated. The f^2 for the relationship between broad customer knowledge and service solution superiority is 0.03, which was identified as small size. The f^2 for the relationship between deep customer knowledge and service solution superiority is 0.01, which is identified as no effect. The comparison of f^2 for both relationships provides more support that knowledge assimilation is more beneficial when the PSF possesses broad customer knowledge than deep customer knowledge, thus supporting hypothesis 6b.

6.8. The model fit of inner-structural models

The PLS toolbox includes a broad range of evaluation criteria to assess the adequacy of the measurement and structural models as described in the extant literature (Sarstedt et al. 2014; Hair et al., 2013; Hair et al., 2011; Chin 1998, 2010). The first assessment method is R^2. The R^2 assesses the level and significance of the path coefficients (Hair et al. 2011). The R^2 measures explain the percentage of variance in the endogenous constructs explained by exogenous construct directly related to it (Hair et al. 2011; Henseler et al. 2011; Sarstedt et al. 2014), which should be over 0.1 (Falk and Miller, 1992). Hair et al. (2011) suggest R^2 values of 0.75, 0.50, or 0.25 for endogenous latent variables in the structural model can be described as substantial, moderate, or weak, respectively. Hair et al. (2011) suggest using F-test to measure the predictive power of inner-structural model by using average of R^2 through formula of $f^2 = \frac{\overline{R^2}}{1-\overline{R^2}}$ proposed by Cohen (1988). f^2 values of 0.02, 0.15, 0.35 signify small, medium, and large effects, respectively.

However, the R^2 only has informative value with regard to in-sample prediction, thus; Sarstedt et al. (2014) suggest using Stone-Geisser's Q^2 proposed by Geisser (1974) and Stone (1974) to provide out-of sample prediction. The Q^2 value is obtained by using a blindfolding procedure, a sample reuse technique that omits every *d*th data

point part and uses the resulting estimates to predict the omitted part (Hair et al. 2011). In the structural model, a Q^2 value larger than zero for a particular reflective endogenous latent variable indicates the path model's predictive relevance for this particular construct (Sarstedt et al. 2014; Hair et al. 2011). In contrast, a Q^2 value smaller than zero indicates that the model does not perform better than the simple average of the endogenous variable would do. It should, however, be noted that while comparing the Q^2 value to zero is indicative of whether an endogenous latent variable can be predicted, it does not say anything about the quality of the prediction (Sarstedt et al. 2014; Hair et al. 2011). To evaluate the relative impact of one construct in terms of its predictive relevance, it is suggested to compute the q^2 effect size, which allows for evaluating the relative impact of one construct (Hair et al. 2014; Chin 1998). It is suggested to calculate q^2 using the formula $q^2 = \frac{Q^2}{1-Q^2}$, where q^2 values of 0.02, 0.15, 0.35 signify small, medium, and large effects, respectively.

Moreover, the predictiveness of the inner-structural model is measured using the goodness-of-fit index (GoF) adopted from O'Cass and Ngo (2010). GoF assesses the fit of both the outer-measurement and inner-structural models to the data simultaneously. GoF can be useful to assess how well a PLS path model can explain different sets of data (Henseler and Sarstedt 2013). The GoF criteria for small, medium, and large effect sizes are 0.1, 0.25, and 0.36 respectively (e.g., Ngo and O'Cass 2009). The GoF is computed by taking the square root of the product of the average communality of all constructs and the average R^2 value of the endogenous constructs as: $GoF = \sqrt{\overline{communality} \times \overline{R^2}}$.

Table 6.22
Result for adequacy of the inner structural model results

Constructs	R^2	f^2	q^2	GoF
Customer based brand equity	0.15			
CCSP	0.31			
Employee brand building behaviour	0.25	0.41	0.45	0.55
Market effectiveness	0.32			
Profitability	0.20			
Service solution	0.52			

The result shows that the all R^2 values for all endogenous constructs were over the benchmark of 0.1 proposed by Falk and Miller (1992) and ranged from 0.15-0.52. The R^2 values related to each endogenous construct are shown in Table 6.19. The highest R^2 is related to service solution (0.52) and the lowest related to customer based brand equity (0.15). The F-test result was 0.41 indicating a large predictiveness of the model. The q^2 was 0.45, indicating the large predictive relevance of these models (Hair et al.

2011). The GoF was 0.55, which shows large goodness of fit based on the recommendation of Hair et al. (2011) and Ngo and O'Cass (2009).

6.9. Summary of hypotheses results

The assessment of inner-structural models (Section 6.7) provided support for the majority (9/12) of the hypotheses, while a minority (3/12) of the hypotheses were partially supported. The results presented in Section 6.8.1 shows that all hypotheses with direct effects were supported (Hypotheses 1, 2, 5a and 5b, and 7a, 7b, and 7c). In Section 6.8.2, the results indicated that the predicted U-shaped effects for hypotheses 3, 4a, and 4b supported, but the direction was rejected and as the U-shaped was positive not inverted as predicted. Thus, hypotheses 3, 4a, and 4b were partially confirmed. The results presented in Section 6.8.3 indicated that all moderation hypotheses were supported (Hypotheses 6a and 6b). Table 6.24 presents summary of hypotheses results of direct, curvilinear, and moderation model.

Table 6.23
Summary of hypotheses results

No.	Hypothesis	Result
H1	Brand specific transformational leadership is positively related to employee brand building behaviour.	Supported
H2	Employee brand building behaviour is positively related to CCSP.	Supported
H3	CCSP has a U-Shaped relationship with superior service solutions.	Partially supported
H4a	Deep technical knowledge has an inverted U shape relationship with innovative and quality service solutions	Partially supported
H4b	Broad technical knowledge has an inverted U shape relationship with innovative and quality service solutions	Partially supported
H5a	Deep customer knowledge is positively related to CCSP	Supported
H5b	Broad customer knowledge is positively related to CCSP	Supported
H6a	Knowledge assimilation is more beneficial in providing superior service solutions when the PSF possess broad technical knowledge than possessing deep technical knowledge.	Supported
H6b	Knowledge assimilation is more beneficial in customer participation when the PSF possess broad customer knowledge than possessing deep customer knowledge.	Supported
H7a	Service solution is positively related to customer based brand equity	Supported
H7b	Service solution is positively related to market effectiveness	Supported
H7c	Service solution is positively related to profitability	Supported

6.10. Conclusion

The results of this study were reported here to address predicted relationship between variables across all hypotheses. This chapter presented the findings from the examination of the data and the assessment of the precision and significance of the proposed model. In particular, Sections 6.2 to 6.7 presented the results of the preliminary analysis, which have illustrated profiles of the sample as well as descriptive statistics of all indicators. The preliminary analysis shows that, 150 professional service firms operate in a variety of professional service industries including software design, accounting, test and inspection services, architecture, consultancy, research services, engineering, real estate, finance, interior design, accounting, and advertising services. To analyse data Smart PLS v2 was applied to assess the adequacy of the measurement and structural models as described in the extant literature. further, PLS also were used to test the hypotheses. The results show that the majority of hypotheses were supported. Further, the results confirmed the validity of measurement and the structural model. The results offer a fundamental backdrop for detailed discussions of the theory developed and the implications drawn from the results which is undertaken in Chapter Seven.

Chapter Seven

Discussion and Conclusions

> *"They [PSFs] are presumed to be distinct from other types of firms: they face a distinctive environment that demands distinctive theories of management".*
>
> *Von Nordenflycht 2010, p. 155.*

7.1. Introduction

A key motivation for this study was the call for more research on PSFs, accompanied by the call for research on service solutions, and the issue of the customer as an active player in the service solution provision process (e.g., Aarikka-Stenroos and Jaakkola 2012; von Nordenflycht 2010; Consoli and Elche-Hortelano 2010; Fenton and Pettigrew 2006; Greenwood et al. 2005). The increasing calls for further research focusing on PSFs is due to the growing role they play in provision of expertise, knowledge based services to other businesses (Global Services Forum 2013; Jaakkola and Hakanen 2013; Kapletia and Probert 2010). Further, PSFs are gaining more attention because they are a source of employment worldwide and undertake value added activities (Fischer et al. 2014; Guzak and Rasheed 2013; Corrocher et al. 2013; Desmarchelier et al. 2013; von Nordenflycht 2010; Consoli and Elche-Hortelano 2010; Amonini et al. 2010; Greenwood et al. 2005). The growth of PSFs has resulted in a managerial challenge of providing superior service solutions that solve business customers' problems, as well as how to build brand equity and competitive market positions for PSFs. This research is among the first to pick up the calls for further research, and bring a multi-focal literature to bear to address specific gaps in the literature. It does so by integrating solution, branding, and leadership literature and accounts for the specific characteristics of PSFs to develop a "B2B Professional service firms service solution model" that helps PSFs better understand how to create superior service solutions to build and maintain brand equity and consequently achieve a stronger competitive market position.

7.2. Overview and background of the thesis

The primary objective of this study, as outlined in Chapter One, focused on providing superior service solutions that help PSFs to enhance brand equity and maintain their competitive market position. Further, Chapter One raised the contention that PSFs

seeking to gain a competitive market position and develop strong brand equity in terms of both customer based brand equity and firm based brand equity should consider two different processes. The two focal processes that are argued to significantly contribute to providing a superior service solution and maintain brand equity were labelled in this study as people management processes and knowledge management processes. The specific and unique characteristics of PSFs were considered important to maintain their competitive market position, because a belief is held among scholars that PSFs are different from other types of firms, and therefore; they need *distinctive theories of management* (Von Nordenflycht 2010, p. 155). As such, this research used the interconnectedness of people management processes, knowledge management processes, service solution superiority, and brand equity to develop the "B2B Professional service firms service solution model". The underlying reason for focusing on these processes and outcomes is the seven gaps identified in the literature presented in Chapter One, Section 1.2.1.

The first gap identified was related to the role of customer cooperation in the service provision (CCSP) process as a driver of brand equity. Given that the literature is replete with mixed findings on the effect of CCSP on process and financial performance, this research proposed that the effect of CCSP on brand equity occurs through PSFs service solution superiority. The second gap identified, was related to CCSP's effect on brand equity through service solution superiority, and specifically how much firm-customer cooperation is beneficial to keep the superiority of service solution at a high level to enjoy stronger brand equity. The third and the fourth gaps identified were related to the role of brand specific transformational leadership in the service solution provision process, and the antecedents and consequences of employee brand building behaviour. The fifth gap was related to the extent deep and broad knowledge improves service solution superiority and the sixth gap was related to the mechanism that facilitates knowledge sharing across the PSF. The seventh gap was related to the contribution of service solution superiority to maintaining brand equity and a PSF's competitive market position.

To address the seven identified gaps, three general research questions were developed in Chapter One, Section 1.2.3, which underpins the interplay between people management processes, knowledge management processes, solution superiority and brand equity:

> ***RQ1-*** *To what extent do people management processes impact service solution superiority in PSFs?*
>
> ***RQ2-*** *To what extent do knowledge management processes impact service solution superiority in PSFs?*

RQ3- *To what extent does service solution superiority impact brand equity in PSFs?*

The content analysis of the literature on CCSP undertaken in Chapter Two, and the literature review on solution, service branding, leadership, and employee brand building behaviour presented in Chapter Three provided a strong foundation to address the seven gaps identified. The knowledge created from reviewing and analysing the literature in Chapters Two and Three were applied to synthesise and incorporate specific constructs to develop the theoretical framework of the study. The constructs constituting the theoretical framework of the study was labelled as the ""B2B Professional service firms service solution model" (Figure 4.5, p. 139) were related to people management processes, knowledge management processes, and the output of these processes seen in this study as brand equity. The component constructs embedded within the theoretical framework were conceptualised and twelve hypotheses were developed in Chapter Four. Chapter Five discussed the research design, which served as a detailed blueprint to guide the implementation of this study. Chapter Five provided justification for the research methodology adopted and detailed the stages of the research design, data collection and measures development processes, sampling frame and anticipated data analysis techniques. Finally, Chapter Six discussed the results of the preliminary data analysis in terms of the psychometric properties of the measures and presented the results focusing on the tests of the hypothesised relationships underpinning the theoretical framework.

The purpose of Chapter Seven, this chapter is to discuss and evaluate the findings and outline the theoretical and practical implications of the study for PSF theory and practice. Chapter Seven encompasses four main sections. Section 7.2 discusses the findings and results of the study and Section 7.3 draws attention to the theoretical and practical implications for PSFs drawn from the findings of the study. These sections are followed by the discussion of the limitations and suggestions for future research, presented in Section 7.4. The closing section of Chapter Seven is the conclusion of the chapter and is presented in Section 7.5.

7.3. Discussion of results

To develop the discussion of the findings in this chapter, the results presented in Chapter Six are examined in terms of the theoretical framework, presented in Figure 4.5 the "B2B Professional service firms service solution model" (p. 139). The theoretical framework encompasses the focal constructs namely technical knowledge (deep and broad), customer knowledge (deep and broad), knowledge assimilation, brand specific

transformational leadership, employee brand building behaviour, CCSP, service solution superiority, and brand equity encompassing customer based brand equity (customer commitment), and firm based brand equity (market effectiveness and profitability). The results presented in Chapter Six provided support for nine hypotheses out of twelve. As shown in Table 6.24 (p. 206), the results supported hypotheses 1, 2, 5a, 5b, 6a, 6b, 7a, 7b, and 7c. However, the results of the initial analysis did not fully support hypotheses 3, 4a, and 4b.

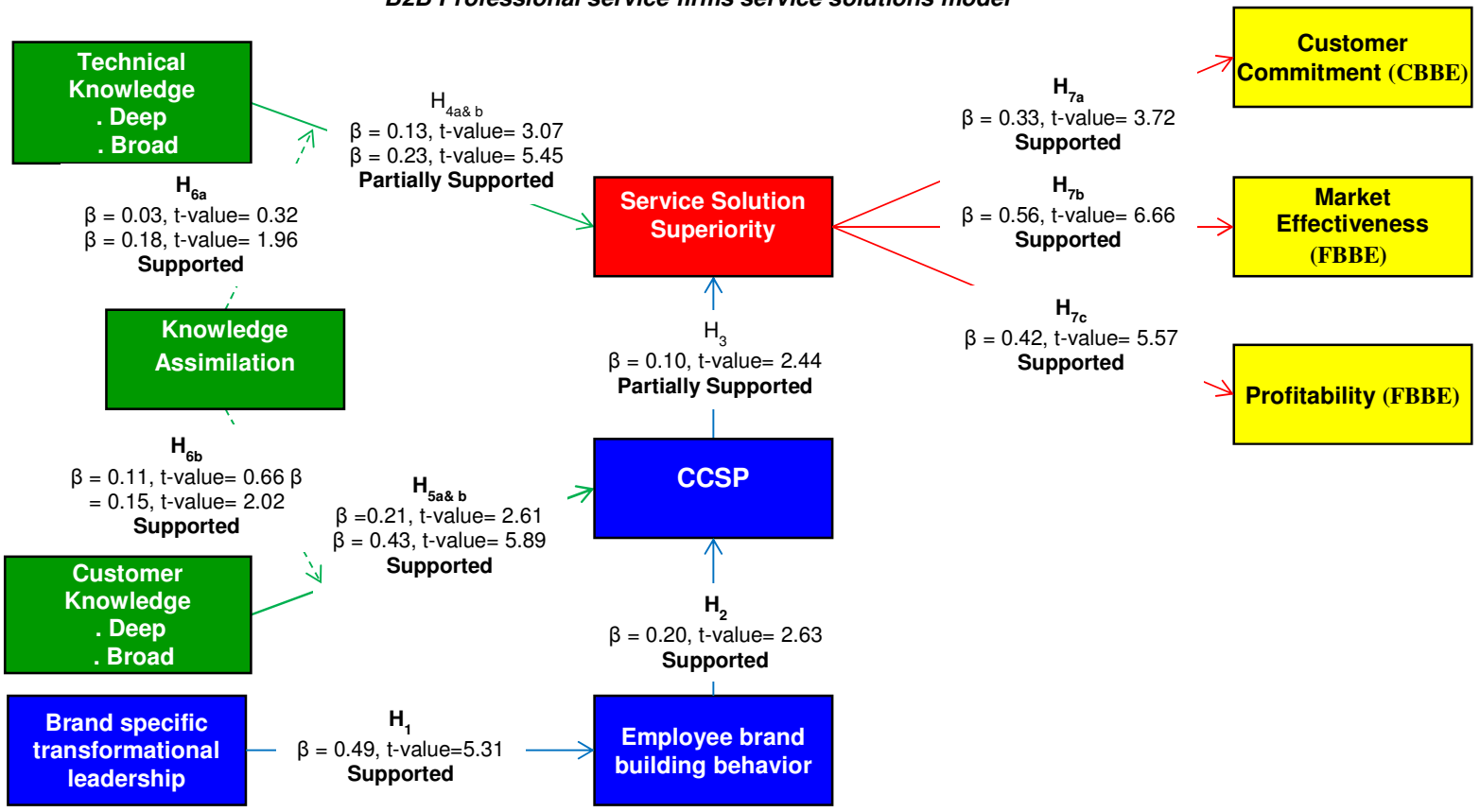
The following sections (7.2.1 to 7.2.3) present the interpretation of the results in detail to enable a more thorough and comprehensive appreciation of the findings and the theoretical framework, the "B2B Professional service firms service solutions model". To assist in this discussion, the theoretical framework that relates to the three general research questions is presented in Figure 7.1 containing four areas highlighted in different colours. The focus of the framework is on service solution superiority, which is shown in the red rectangle. Service solution superiority is the focal construct, because as mentioned in Chapter One, Section 1.1, the main challenge for PSFs is providing a service solution that satisfies customer requirements in their efforts to maintain a competitive market position. Due to the importance of providing a superior service solution, all constructs in the framework are seen as contributing to its development, and it in turn contributes to brand equity. The blue rectangles and lines illustrate the roles and relationships between specific elements of the people management processes and their effect on service solution superiority (see the blue rectangles and lines in Figure 7.1). People management processes are discussed in the form of CCSP from the firm perspective in the service solution provision process, as well as a broad domain of service branding with a specific focus on brand specific transformational leadership and employee brand building behaviour. Given that, the focus here is on brand building across the PSF, and given that, it is well established in the literature that in service firms people are the brand, this section of the theoretical framework in reality encompasses brand oriented people management processes. This part of the framework focuses on addressing research question one (RQ1).

The green rectangles in Figure 7.1 identify knowledge management processes, which focus on the role of technical knowledge in the development of service solution superiority and customer knowledge to develop CCSP. Referring to Chapter Four, Section 4.2.3.2, the underlying premise advanced was that customer knowledge improves service solution superiority through CCSP. Further, the moderation effect of knowledge assimilation on the relationship between technical knowledge and service solution superiority, as well as the relationship between customer knowledge and CCSP

was taken into account (see green rectangles and lines in Figure 7.1). This part of the theoretical framework focuses on addressing research question two (RQ2).

The yellow rectangle in Figure 7.1 represents the outcomes of service solution superiority, which pertains to brand equity. In relation to brand equity, two important components of brand equity in the form of customer based brand equity and firm based brand equity were identified and examined (see red lines). This part of the theoretical framework addresses research question three (RQ3).

Figure 7.1
B2B Professional service firms service solutions model



Source: developed for this research
Note: blue rectangles represent people management processes
Green rectangles represent knowledge management processes
Yellow rectangles represent brand equity

7.3.1. Discussion of service solution superiority

Given the focus of this study is on introducing a mechanism within PSFs that develops a service solution, which is superior in quality and innovativeness, this section discusses the potential value of service solution superiority to establish a strong position in the market and enhance brand equity.

The main reason to focus on service solution superiority as a central or focal point of this study is that service solution superiority crystallises the PSF's activities and turns those activities into superior brand equity and a competitive market position. PSFs integrate different resources to provide a superior service solution. The ability of a PSF to integrate specific resources and manage them throughout the service solution provision process determines the superiority of a service solution. Consequently, a PSF is better able to understand the effectiveness of resource management and base the achievement of brand equity and a competitive position in the market. This is critical, because the level of superiority of service solutions helps build reputation, brand image, and brand equity attracting new customers and retain existing customers and results in superior financial performance.

Given the centrality of service solution superiority and the role it plays in the "B2B Professional service firms service solution model" specific definitions for service solution and service solution superiority were developed in this study that depart from the existing definitions of solution in the literature. The dominant definitions of service solution that have been advanced in the literature focus on manufacturing firms who offer services to support their products. Given the different nature of PSFs from manufacturers who offer services to support their products, it deemed necessary to develop a definition of service solution. This research developed a definition for service solutions in the context of PSFs as a customised service to meet customers' non-standardised needs. Service solution superiority is defined as the level of quality and innovativeness of a customised service solution provided to customers to meet a specific customer's non-standardised need. Further, a measure of service solution superiority was developed here to operationalise the definition. The definitions and measures contribute to the solution and PSF literature, which is discussed further in the theoretical contribution section.

Given the special characteristics of professional services such as application of complex knowledge, interactively designed, and customised to meet customers' specific requirements (Jaakkola and Hakanen 2013; Aarikka-Stenroos and Jaakkola 2012; Greenwood et al. 2006; Maister 1993), two main inputs into service solution superiority are identified here. These two important inputs are brand oriented people management processes and knowledge management processes (Chae 2012; Greenwood et al. 2006;

Maister 1993). Specific elements of knowledge and people management processes directly and/or indirectly contribute to providing appropriate inputs to develop service solution superiority. Therefore, the focus of attention in this research was directed toward service solution superiority, knowledge and people management processes as well as brand equity, which were seen to revolve around service solution superiority. In picking up on these issues, the subsequent sections (Section 7.3.2 and 7.3.7) discuss the results and set them in relation to the research questions and related hypotheses to understand how PSFs manage their resources to provide superior service solutions.

7.3.2. Results for RQ1

Research question one (RQ1), states to what extent do people management processes impact service solution superiority in PSFs? RQ1 underpins the people management processes block in the theoretical framework, and is further addressed via three sub-research questions:

> ***RQ1a.*** *To what extent does brand specific transformational leadership influence employee brand building behaviour in PSFs?*
>
> ***RQ1b.*** *To what extent does employee brand building behaviour influence cooperating with customers in the PSFs?*
>
> ***RQ1c.*** *To what extent does cooperation with the customer improve service solution superiority in the PSFs?*

Each sub-research question (1a, 1b, 1c) is related to the different roles that key actors across a PSF play (leaders, employees, and customers) in the PSFs' effort to provide superior service solutions and are represented as people management processes in the theoretical framework the *"B2B Professional service firms service solutions model"* (Blue block in Figure 7.1). The focus of RQ1a is on the role of leaders with a specific view towards branding. RQ1a addresses the relationship between brand specific transformational leadership (BSTFL) and employee brand building behaviour in PSFs. This question is answered through hypothesis 1. Further, the focus of RQ1b is on the role of employees with a specific emphasis on brand building behaviour. RQ1b addresses the contribution of employee brand building behaviour in supporting the PSFs' CCSP. This question is addressed through hypothesis 2. The focus of RQ1c is on the role of CCSP and explores the importance of the customer, and the firm's cooperation with customers in the provision of superior service solutions. RQ1c is addressed through hypothesis 3.

The following discussion is based on the hypotheses developed in the *"B2B Professional service firms service solutions model"* presented in Figure 7.1 (blue rectangles). These research questions and hypotheses seek to address gaps related to establishing a mechanism that supports developing the brand inside the PSF, and represent the brand's values to customers through CCSP. More specifically, the gaps are related to identifying drivers and consequences of employee brand building behaviours. In this sense, BTSFL is considered as a direct driver of employee brand building behaviour and CCSP is the consequence of employee brand building behaviour. Further, the indirect effect of BTSFL on the development of the PSF's CCSP is brought into account. The last gap is addressed by answering RQ1 which is about the extent that CCSP contributes to the provision of a superior service solution.

7.3.2.1. Discussion of hypothesis 1

Hypothesis 1 focuses on the people management processes block and states brand specific transformational leadership (BSTFL) is positively related to the PSFs' employee brand building behaviour (EBBB). As shown in Table 6.20 (p. 201), BSTFL is positively related to EBBB (β = 0.49, t-value= 5.31), explaining 25% of the variance of EBBB. This result indicates a leader following a brand transformational leadership style, which focuses on a motivational approach to encourage followers to act on behalf of the brand, significantly influences employee behaviour to support the brand and its values.

While prior research acknowledges the crucial role of employees as the brand representative in service firms, empirical research on how to turn employees into brand champions remains scarce. To turn employees into brand champions, previous research mainly focuses on employee's psychological state, employee perception of the brand (Löhndorf and Diamantopoulos 2014; king and Grace 2012; Morhart et al. 2009), and employee's sources of motivation (Morhart et al. 2009) to develop EBBB across service firms. However, other researchers in this domain outline the importance of cultural values (Uen et al. 2012; Clark et al. 2009) and brand-oriented culture (Baumgarth and Schmidt 2010). However, this body of work rarely considers BSTFL as a direct predictor of EBBB.

This study advances the literature by showing the extent that BSTFL directly affects EBBB. Importantly, the result supports the proposed relationship, showing that the relationship between BSTFL and EBBB is positive and significant. In addressing RQ1a, which asked the extent BSTFL influences EBBB, the results indicate in the context of PSFs a leader who works to strengthen a brand's values and enthusiastically motivates employees to support those brand values has the capacity to align employee

behaviour towards supporting the brand. In this sense, under the training and mentoring emanating from BSTFL employees commit themselves to behave in accordance to the brand's values and become brand champions. They challenge the current routines and come up with new ideas that contribute to developing the brand and the brand's values.

7.3.2.2. Discussion of hypothesis 2

Hypothesis 2 focusing on people management processes block, states that EBBB is positively related to CCSP. As shown in Table 6.20 (p. 201) EBBB is positively related to CCSP (β = 0.20, t-value= 2.63), explaining 20% of the variance of CCSP. This result indicates when employees engage in EBBB it significantly improves the PSFs' ability to cooperate with customers through improving the CCSP of the firm.

These results are interesting considering that employee brand building behaviour was viewed as a combination of in-role and extra-role behaviour. Previous research on the effect of employee behaviours has mainly focused on extra-role behaviour (Mackenzie et al. 2011). However, a limited number of studies have argued that in-role behaviour moderates the effect of extra-role behaviour and the outcomes of employee behaviour (Van Dyne et al. 2008; Piercy et al. 2006). In the branding literature, some researchers have exclusively focused on extra-role brand building behaviours (e.g., Baker et al. 2014; King and Grace 2010) or view in-role and extra-role brand building as independent outcomes of branding activities (e.g., Morhart et al. 2009). Recently, Baumgarth and Schmidt (2010) applied a combination of extra-role, in-role employee brand building, and employee loyalty to explain the notion of internal brand equity. However, internal brand equity is a broad concept and may encompass different types of employee behaviour. Further, the consequence of employee brand building behaviour in their research is customer based brand equity.

However, no research to date appears to have examined the effect of EBBB as a combination of extra-role and in-role employee brand building and examined how such an operationalisation of EBBB effects the extent firms cooperate with customers, especially in the PSF setting. The findings show that the integration of both extra-role and in-role employee brand building into EBBB contributes to CCSP. The result provides an answer to RQ1b which asked the extent EBBB influences PSFs' CCSP. It appears that employees who behave in a manner that supports the brand's values provide appropriate or meaningful input into the PSFs CCSP process. In their effort, employees not only undertake their prescribed duties to meet the standards of the PSFs' brand values, but also voluntary engage in specific types of activities to provide brand supportive inputs and together these behaviour and actions provide positive input into

the process of customer cooperation. As such, EBBB significantly contributes to the PSFs CCSP.

7.3.2.3. Discussion of hypothesis 3

Hypothesis 3 focuses on the people management processes block and states that CCSP has an inverted U-shaped relationship with service solution superiority. The results provided in Table 6.21 (p. 202) shows that the inverted U-shaped hypothesis focusing on the effect of CCSP on service solution superiority is not fully supported, with a positive relationship U-shaped found, not an inverted U-shaped (the quadratic result is: $\beta = 0.10$, t-value= 2.44). The positive U-shaped effect is an interesting finding, as it provides more information about the relationship between CCSP and service solution superiority.

Lind and Mehlum (2010) state a positive U-shaped relationship shows that the slope of the curve is negative at the start and positive at the end of a reasonably chosen interval of x-values [xl, xh]. Translating the above proposition to the relationship between CCSP and service solution superiority, the finding suggests that CCSP has a negative effect at the start. However, with increases in CCSP, the positive effect on the superiority of service solutions seems to manifest. The positive U-shaped relationship between CCSP and service solution superiority suggests that higher levels of CCSP are more beneficial in providing a superior service solution. At lower levels of CCSP, PSFs appear to have difficulty in providing a superior service solution. However, with increases in the level of CCSP the service solution superiority initially decreases to a certain point. After that point, a higher level of CCSP will provide an improvement in service solution superiority.

Interestingly, the content analysis of CCSP in Chapter Two shows that all previous research on CCSP has only examined linear relationships between CCSP and its hypothesised outcomes, not U-shaped effects (p.31). This research extends the literature by showing that the effect of CCSP depends on the level of CCSP that a PSF engages in. Importantly, while it is noted that the customers' presence in the service solution provision process may have some negative effects such as interfering in the process, the customers absence is more detrimental to enhancing the superiority of service solution in the PSF setting.

In addressing RQ1c, which asked the extent CCSP improves service solution superiority, it appears that at low levels of CCSP the superiority of service solution diminishes. Based on the findings, it is argued here that a PSF that is not cooperating sufficiently with customers or when they are not experienced enough to cooperate with

customers, fails to provide superior service solutions. Perhaps at low levels of CCSP a PSF does not gain from or have enough access to the customer's resources to solve the problem or customise the solution. However, the assumption of a diminishing return to the service solution superiority due to high (very high) levels of CCSP seems to not be representative of what the case may actually be. CCSP appears to have an increasing effect on service solution superiority, suggesting that as a PSF cooperates more with the customer, it becomes more effective in CCSP activities, which translates into increasing service solution superiority.

7.3.3. Summary of answers for RQ1

Research question one examined the consequences of people management processes on service solution superiority. Overall, the findings show that people management processes (which in this sense, are in reality brand oriented people processes) significantly contribute to developing a superior service solution. The findings show that if a PSF wishes to provide superior service solutions it needs to be brand oriented and have people who are driven by brand values. In this sense, the leader who demonstrates brand supportive behaviours plays a significant role to mentor and lead employees to adopt brand supportive behaviours. The findings show PSFs' employees are likely to support the brand and its values and act on behalf of the brand when the leader adopts a BSTFL style. Employees, who have aligned their behaviour with brand values and hold a strong belief in supporting the brand and the brand's values, do in fact provide appropriate input into CCSP and enhance the PSF's CCSP. Given the fact that the more PSFs cooperate with customers, the more the superiority of service solutions are enhanced, and as such, the input provided into CCSP becomes critical. In this sense, those employees who are brand oriented in the sense they engage in higher levels of EBBB are more able to provide the appropriate input into CCSP to enhance the superiority of service solutions.

7.3.4. Result for RQ2

Research question two (RQ2), focuses on the extent knowledge management processes impact service solution superiority in PSFs? RQ2 underpins the knowledge management processes block in the theoretical framework, which is addressed via four sub-research questions:

> ***RQ2a.*** *To what extent do the levels of broad and deep technical knowledge influence service solution superiority in PSFs?*

RQ2b. *To what extent does the broad and deep customer knowledge influence cooperation with the customer in PSFs?*

RQ2c. *To what extent does knowledge assimilation affect the strength of the relationship between technical knowledge and service solution superiority in PSFs?*

RQ2d. *To what extent does knowledge assimilation affect the strength of the relationship between customer knowledge and CCSP in PSFs?*

Each sub-research question is related to the effect of two dimensions of knowledge, identified as deep and broad knowledge (in relation to both technical and customer) and their effect on service solution superiority and CCSP. Further, the effect of knowledge assimilation as a mechanism that enhances the relationships between the two dimensions of technical and customer knowledge on service solution superiority and CCSP was also considered. These relationships represent the knowledge management processes in the theoretical framework (Green block in Figure 7.1). The focus of RQ2a is on the role of deep and broad technical knowledge and service solution superiority. RQ2a addresses the extent that a PSF needs to possess deep and broad technical knowledge to provide superior service solutions. This research question is answered through hypotheses 4a and 4b. The focus of RQ2b is on the role of deep and broad customer knowledge. RQ2b addresses the contribution of deep and broad customer knowledge to CCSP. This research question is addressed through hypothesis 5a and 5b. The focus of RQ2c and RQ2d is on the moderation effect of knowledge assimilation on the relationship between knowledge and service solution superiority and CCSP. RQ2c addresses the extent that knowledge assimilation is more beneficial to provide a superior service solution, when a PSF possesses deep technical or broad technical knowledge. This question is addressed through hypothesis 6a. RQ2d examines whether knowledge assimilation is more beneficial in providing a superior service solution and in CCSP, when a PSF has deep customer knowledge or broad customer knowledge. This question is addressed through hypothesis 6b.

The following discussion is based on the hypotheses in the "B2B Professional service firms service solution model" in Figure 7.1 (Green rectangles, p. 213). These research questions and hypotheses address the gaps in the literature related to knowledge management processes in PSFs. More specifically, the gaps are related to the extent that deep and broad technical and customer knowledge contributes to developing service solution superiority and/or CCSP. Further, the mechanism that a PSF can apply to improve the level of understanding of knowledge across the PSF to improve organisational knowledge is brought into account by highlighting the role of knowledge assimilation.

7.3.4.1. Discussion of hypothesis 4a

Hypothesis 4a focuses on the knowledge management processes block and states that deep technical knowledge has an inverted U-shaped relationship with service solution superiority. The results provided in Table 6.21 (p. 202) shows that the inverted U-shaped hypothesis focusing on the effect of deep technical knowledge on service solution superiority is not fully supported, with a positive relationship U-shaped found, not an inverted U-shaped (the quadratic result is: $\beta = 0.13$, t-value= 3.07). The positive U-shaped is an interesting finding, as it provides more information about the relationship between deep technical knowledge and service solution superiority.

The finding suggests that deep technical knowledge has a negative effect at the start, but with increases in deep technical knowledge the level of service solution superiority increases. The positive U-shaped relationship between deep technical knowledge and service solution superiority, suggest that higher levels of deep technical knowledge are more beneficial in providing a superior service solution. At lower levels of deep technical knowledge, a PSF appears to have difficulty in providing a superior service solution. However, with increases in the level of deep technical knowledge the superiority of service solution decreases to a certain point. After that point, a higher level of deep technical knowledge provides an improvement in service solution superiority.

This finding contradicts the contention raised by Zhou and Li (2012) who argued that in the product domain deep technical knowledge results in organisational inertia and negatively affects idea generation. This is a departure from the product literature and PSF domain, as PSFs improve their level of deep technical knowledge, they may find new approaches to offer more innovative and quality service solutions. The other possibility is that when PSFs possess very high levels of deep knowledge, this knowledge is used more beneficially in the service solution provision process and the level of trial and error decreases and in this sense increases the key outcome, which is the superiority of the service solution. This argument is consistent with the work of Katz and Du Preez (2008) and Prabhu et al. (2005) who indicate increasing the level of technical expertise promotes the ability to solve complex problems and implement new ideas in a timely manner. Perhaps, at low levels of deep technical knowledge, a PSF is less able to solve complex problems and provide superior service solutions; and, at higher levels of deep technical knowledge, a PSF has enough knowledge resources to solve complex problems leading to superior service solutions.

The result specifically addresses the first part of RQ2a indicates that the extent a PSF possesses deep technical knowledge determines service solution superiority. It appears that increasing the level of deep technical knowledge exponentially increases

service solution superiority. It is more likely that a PSF becomes more efficient in using or managing deep knowledge to provide superior service solution. Further, the result suggests at low levels of deep technical knowledge, the level of service solution superiority diminishes because PSFs do not possess enough deep technical knowledge to solve customer problems. This finding challenges the proposed negative effect of excessive deep technical knowledge related to increasing the probability of organisational inertia. Further, the findings validate the argument that a diminishing return to the superiority of service solutions due to high (and very high) levels of deep technical knowledge in the PSF domain is overstated and a high level of deep technical knowledge is not harmful to the service solution superiority.

7.3.4.2. Discussion of hypothesis 4b

Hypothesis 4b focuses on the knowledge management processes block and states broad technical knowledge has an inverted U-shaped relationship with service solution superiority. The results provided in Table 6.21 (p. 202) show that the inverted U-shaped hypothesis focusing on the effect of broad technical knowledge on service solution superiority is not fully supported, with a positive relationship U-shaped found, not an inverted U-shaped (the quadratic result is: $\beta = 0.23$, t-value= 5.45). This result shows that the assumption of a diminishing return to the superiority of service solution due to high (very high) levels of broad technical knowledge is overemphasised and a high level of broad technical knowledge is not harmful to service solution superiority.

The positive U-shaped relationship between broad technical knowledge and service solution superiority suggests that at higher levels of broad technical knowledge the superiority of a service solution is enhanced. However, at lower levels of broad technical knowledge, a PSF appears to constrain its ability to provide a superior service solution. More specifically, the findings indicate that the relationship between broad technical knowledge and service solution superiority is only significant at moderate to high levels and not at lower levels of broad technical knowledge. A possible reason for the increase in superiority of service solution is found in the argument raised by Li and Zhou (2012) in the product domain where they argued that broad knowledge increases the generation of new ideas in the firm. Extending the argument raised by Li and Zhou (2012) into the PSF domain it is argued that when PSFs create new ideas, they can apply some of them in the service solution provision process and increase the superiority of service solutions in two facets of a service solution being quality and innovativeness.

The reason for the drop in service solution superiority might be due to the lack of familiarity with the broad technical knowledge and making mistakes in selecting the most appropriate pieces of broad technical knowledge as an input into providing superior service solutions. This view is consistent with the contention raised by Katila and Ahuja (2002) who in the product domain believe broad knowledge decreases the reliability of knowledge applied in the innovation process. The unreliability of knowledge is due to the wrong selection of broad knowledge that may not be useful to apply in the service solution provision process. Further, the decrease in the superiority of service solutions might be the result of distractions from unrelated knowledge coming from a broad domain.

Previous research does not provide strong empirical evidence to support the importance of broad and deep technical knowledge in the service solution and PSF context. However, the qualitative study by Jensen et al. (2012) shows PSFs do not appreciate having broad knowledge, because their time is billable. Thus, they do not spend time to obtain broad technical knowledge as they think they decrease their chance to make money. The findings of this research expand our understanding on the importance of broad technical knowledge in providing superior service solutions in the PSF context and show a high level of broad technical knowledge helps PSFs provide superior service solutions.

The result addressing specifically the second part of RQ2a indicates that possessing high level of broad technical knowledge determines the level of service solution superiority. The findings indicate that broad technical knowledge is only beneficial when PSFs possess high levels of broad technical knowledge, and not, lower levels of broad technical knowledge. Contrary to the product literature, the findings show that broad technical knowledge does not diminish the superiority of service solutions in the PSF context. Broad technical knowledge is harmful to the superiority of a service solution, when a PSF engages in acquiring a low level of broad technical knowledge.

7.3.4.3. Discussion of hypothesis 5a

Hypothesis 5a focusing on the knowledge management processes block states deep customer knowledge is positively related to CCSP. As shown in Table 6.20 (p. 201) deep customer knowledge is positively related to CCSP (β =0.21, t-value= 2.61), explaining 28% of the variance of CCSP. The result shows any changes in deep customer knowledge produces a corresponding change in CCSP that is positive and significant. These findings support the theoretical arguments made in Chapter Four that

when PSFs acquire deep customer knowledge, they improve the extent they cooperate with their customers and enhance CCSP.

The content analysis of the literature on CCSP showed that researchers considered a range of antecedents to CCSP. However, none of the studies in the B2B and B2C context have paid attention to the effect of deep customer knowledge as an antecedent of CCSP. This study extends the literature by introducing deep customer knowledge as an important determinant of CCSP. The importance of customer knowledge to develop relationships with customers is well supported in the literature (Arnold et al. 2011; Day 1984). Given that CCSP is relational in nature, this study shows that deep customer knowledge contributes to enhancing CCSP by increasing the PSF's understanding of the customer's business.

Importantly, Empson (2001) argued a detailed understanding of customers is one of the main inputs for successful service solution provision, because PSFs understand what should be provided to solve customers' business problems. This study extends her theoretical argument by empirically showing that the customer knowledge is transferred into service solution provision process through CCSP. Here, CCSP acts as a platform for the customisation of service solutions to occur. Through CCSP, deep customer knowledge facilitates setting up business goals and objectives, and as a result of deep customer knowledge a PSF is aware of the potential resources and the capability of its customers and the timeline a business customer needs the service solution ready.

Significantly, while the work of scholars such as Arnold et al. (2011) examines the relationship between deep customer knowledge and service innovation to meet customer needs, they specifically focus on B2C context. The findings of this study extend Arnold et al. (2011) by focusing on a very specific area; service solution in the B2B context. Further, Arnold et al. (2011) directly measured the relationship between customer knowledge and service innovation, while this study looks at CCSP as a platform that provides a strong foundation for providing superior service solutions. Given that a service solution is an innovative service which is new to any customer, it is shown here that a deep understanding of a customer's business facilitates providing and customising a service solution that meets their business requirements through the platform of CCSP. In the CCSP platform, deep customer knowledge improves the PSFs' ability to offer and evaluate service solution options that are matched with customer needs. The result addressing the first part of RQ2b indicates that deep customer knowledge assists PSFs to develop CCSP in a way that any changes in deep customer knowledge produces a corresponding change in their CCSP.

7.3.4.4. Discussion of hypothesis 5b

Hypothesis 5b focusing on the knowledge management processes block states broad customer knowledge is positively related to CCSP. As shown in Table 6.20 (p. 201) broad customer knowledge is positively related to CCSP (β = 0.43, t-value= 5.89) and explains 37% of the variance of CCSP. The result shows any changes in broad customer knowledge produces a corresponding change in the CCSP that is positive and significant. These findings support the theoretical arguments made in Chapter Four that when PSFs acquire broad customer knowledge, they improve their ability to cooperate with their customers and enhance CCSP.

The content analysis of the literature on CCSP showed that researchers have not paid any attention to the effect of broad customer knowledge as an antecedent of CCSP. This study extends the literature by introducing broad customer knowledge as an important determinant of CCSP. Further, the solution literature explicitly underscores the role of broad customer knowledge, because of the customised nature of solutions that require deep customer knowledge. Moreover, in the PSF context, employees do not search for extra knowledge beyond what they need to solve customer problems, because they believe they may waste their billable time (Jensen et al. 2012). This study brings the importance of broad customer knowledge into providing superior service solutions using CCSP as a platform into prominence. The finding of this study challenges the work of Jensen et al. (2012) and show that broad customer knowledge significantly contributes to developing CCSP in PSFs.

Significantly, while the work of scholars such as Chae (2012) alludes to the view that PSFs should go beyond their familiar domains, such views have not empirically tested and substantiated. The finding of this study extend the contention raised by Chae (2012) in that the results show that broad knowledge is an important input into the service solution provision process through the platform of CCSP. The possible reason for this result may be that a PSF generates more ideas from broad customer knowledge and recombines those ideas in creative ways to offer more innovative and quality service solutions that help solve a business customer problem.

Building on the result, the answer to the second part of RQ2b indicates that broad customer knowledge enhances PSFs' CCSP in a way that any changes in broad customer knowledge produces a corresponding change in the CCSP. It is argued here that when a PSF offers more options to a customer, it can motivate and mobilise the customer for more cooperation with the PSF. Moreover, the combination of different ideas resulting from broad customer knowledge provides more options for the PSF to set up creative goals and business objectives with business customers through CCSP, thus; creating a better service experience for customers.

7.3.4.5. Discussion of hypothesis 6a

Hypothesis 6a focuses on the knowledge management processes block and states that knowledge assimilation is more beneficial in providing superior service solutions when a PSF possesses broad technical knowledge compared to possessing deep technical knowledge. The result for hypothesis 6a shows that the moderation effect of knowledge assimilation on the relationship between deep technical knowledge and service solution superiority is not significant (β = 0.03, t-value= 0.32) and the f^2 shows no effect. On the other hand, the result shows the moderation effect of knowledge assimilation on broad technical knowledge and service solution superiority is significant (β = 0.18, t-value= 1.96), with a small f^2. The findings lend significant support to the contention raised in Chapter Four on the important effect of knowledge assimilation when PSFs hold broad technical knowledge.

The insignificant result for the moderation role of knowledge assimilation on the relationship between deep technical knowledge and service solution superiority implies that in the context of PSFs technical knowledge is deep, because people are experts in their field of activity (Von Nordenflycht 2010; Greenwood et al. 2005; Empson 2001). Therefore, there is no underlying imperative (reason) to discuss and disseminate deep technical knowledge. The conclusion drawn here is built on the findings in this study and previous research, which theoretically proposes employees in PSFs are highly educated with deep understanding and expertise knowledge in their own field of activities (Von Nordenflycht 2010; Walsh and Gordon 2010; Greenwood et al. 2005). Thus, they are not motivated to share knowledge or enhance their knowledge through discussions and meetings.

However, previous studies in other contexts provides contradictory results for the moderation role of knowledge assimilation on deep knowledge. For instance, similar to the findings of this study, Zhou and Li (2012) did not find a significant moderation effect of knowledge assimilation on the relationship between deep market knowledge and radical innovation in high tech companies. This study differs from the work of Zhou and Li (2012) as they focused on deep knowledge, including market and technical knowledge, while this study focuses specifically on deep technical knowledge. Further, the other point of departure here is that Zhou and Li (2012) examined the effect of deep knowledge on radical innovation, while this study exclusively focuses on a very specific area, service solution superiority. As such, this study extends the work of Zhou and Li (2012) by narrowing the focus and examining this relationship in a specific context on a very specific output, which is service solution superiority in the PSF context. Interestingly, in product domain De Luca and Atuahene-Gima (2007) found a negative moderation effect for knowledge assimilation on deep knowledge. The findings of this

study extend our knowledge by showing the effect of knowledge assimilation in the product domain and service domain is different. The result might be due to the different types of knowledge applied in the study of De Luca and Atuahene-Gima (2007) and this study. De Luca and Atuahene-Gima (2007) focused on deep market knowledge, while this study focuses on technical knowledge. Further, the findings provide more insight in knowledge based service firm domain by showing knowledge assimilation might not be significantly beneficial for PSFs to provide a superior service solution, but it is not harmful to the superiority of service solutions, which is contrary to the product domain.

While the findings on the moderation effect of knowledge assimilation on the relationship between deep technical knowledge and service solution superiority was not significant, the result was significant for the effect of knowledge assimilation on the relationship between broad technical knowledge and service solution superiority. It is acknowledged here that when a PSF engages in acquiring broad technical knowledge, knowledge assimilation is more important and plays a more prominent role in the solution provision process. It seems that for a PSF to enhance the effect of broad technical knowledge to enhance service solution superiority they must maximise knowledge assimilation. While PSFs are recognised as knowledge based firms, no research in this context has examined the effect of knowledge assimilation. The findings of this study is similar to the work of Zhou and Li (2012), who showed knowledge sharing is a strong moderator when high tech companies have broad knowledge and its influence leads to a higher level of radical innovation.

However, the findings of this study contradict the work of Jensen et al. (2012) who showed that PSFs have little focus and emphasis on developing the knowledge skills of the professionals beyond what is needed for them to work on projects. While, Jensen et al. (2012) reason that professionals in PSFs consider their time as billable and believe these types of activities waste time and money, the findings here show knowledge assimilation is beneficial and shows that technical knowledge and its impact on solution superiority is enhanced by knowledge assimilation .

In addressing the answer to RQ2c, the findings of this study provide a more nuanced understanding of how a PSF's technical knowledge base and knowledge assimilation mechanism jointly affect the service solution superiority. The results show that PSFs benefit more from knowledge assimilation to provide superior service solutions when they are engaged in broad technical knowledge compared to when they engage in the development of deep technical knowledge. However, contrary to the product domain, knowledge assimilation is not harmful in the PSF context. While knowledge assimilation is not beneficial to enhance service solution superiority when knowledge is deep, it is not

hazardous, and one may conclude that PSFs can enjoy benefits from knowledge assimilation.

7.3.4.6. Discussion of hypothesis 6b

Hypothesis 6b focuses on the knowledge management processes block and states the knowledge assimilation is more beneficial in CCSP when the PSF possesses broad customer knowledge than deep customer knowledge. The result for hypothesis 6b shows that the moderation effect of knowledge assimilation on the relationship between deep customer knowledge and CCSP (β = 0.11, t-value= 0.66) is not significant and the f^2 for this relationship shows no effect. However, the moderation effect of knowledge assimilation on the relationship between broad customer knowledge and CCSP (β = 0.15, t-value= 2.02) is significant and the f^2 effect is small. These findings support the theoretical arguments made in Chapter Four that knowledge assimilation is more beneficial when the PSF possess more broad knowledge.

The insignificant result for the moderation role of knowledge assimilation on the relationship between deep customer knowledge and CCSP is the inherent function of knowledge assimilation. Knowledge assimilation increases the level of understanding of the knowledge (Kostopoulos et al. 2010; Brandon and Hollingshead 2004) through discussions meeting and sharing ideas (De Luca and Atuahene-Gima 2007). When the PSF's customer knowledge is deep, there is not much to learn and understand about knowledge, because everybody has a clear and high level of understanding of the knowledge. Therefore, knowledge assimilation does not affect this relationship.

The significant moderation effect of knowledge assimilation on the relationship between broad customer knowledge and CCSP supports the view that when the PSF's customer knowledge is broad, knowledge assimilation is more important and plays a more prominent role in the solution provision process. The findings show that knowledge assimilation creates new ideas through discussions, meetings and knowledge exchange that help PSFs to offer more options to the customer through the CCSP process. It seems knowledge assimilation increases the understanding of PSF of broad customer knowledge, and as such, the PSF can apply the customer knowledge in a more effective manner to enhance CCSP. The insight from this finding is similar to the result reported in Section 7.3.4.5. This finding confirms again that knowledge assimilation in PSFs is not harmful, but it is also not overly beneficial.

In addressing the answer to RQ2d, the findings of this study provide a more distinctive understanding of how a PSFs customer knowledge base and knowledge assimilation mechanisms jointly affect CCSP. The results show that the PSF benefits

more from knowledge assimilation when they possess broad customer knowledge compared to when they possess deep customer knowledge. While the knowledge assimilation is not beneficial to enhance CCSP when knowledge is deep, it is not hazardous.

7.3.5. Summary of answer to RQ2

Research question two examined the consequences of PSFs knowledge management processes on service solution superiority and CCSP. Overall, the findings show that PSFs knowledge management processes contribute to developing a superior service solution. While deep and broad technical knowledge directly affect service solution superiority, deep and broad customer knowledge improves service solution superiority through CCSP. The effect of customer knowledge works through CCSP, because CCSP is a platform where a service solution is customised. In other words, customer knowledge is transferred to service solution superiority through the channel of the PSFs CCSP.

The findings show that to provide a superior service solution to their customers PSFs need to develop a high level of both technical and customer knowledge. The findings show when both deep and broad knowledge are at high levels, PSFs gain more advantages in service solution provision and appear to be more capable of cooperating with customers and providing superior service solutions. Interestingly, PSFs appear to benefit more from both broad technical and customer knowledge compared to deep technical and customer knowledge. This conclusion has some merit because the β for both broad customer and technical knowledge is higher than the β for deep customer and technical knowledge. As broad knowledge is associated with more uncertainty, PSFs appear to reduce the uncertainty and increase its benefit through knowledge assimilation that helps them analyse, interpret, and disseminate the knowledge to improve the usefulness, usability and impact of broad knowledge.

7.3.6. Results for RQ3

Research question three (RQ3) asks **t**o what extent does service solution superiority impact brand equity in PSFs? RQ3 underpins the brand equity component of the theoretical framework as the outcomes of superior service solutions. RQ3 is addressed via two sub-research questions:

> ***RQ3a.*** *To what extent does service solution superiority contribute to the development of customer based brand equity in PSFs?*

RQ3b. *To what extent does service solution superiority contribute to the development of firm based brand equity in PSFs?*

Each sub research question is related to the two focal dimensions of brand equity identified as customer based brand equity and firm based brand equity shown in the "B2B professional service firms service solution model". Customer commitment is an indicator of customer based brand equity and market effectiveness and profitability are two dimensions of firm based brand equity (Simon and Sullivan 1993). This study focuses on three sub dimensions of brand equity that are argued to contribute to maintaining a competitive market position for PSFs. As shown in Figure 7.1 (Yellow rectangles, p.213), it is predicted that there is positive effect for service solution superiority on brand equity. The focus of RQ3a is on the effect of service solution superiority on customer based brand equity (customer commitment). RQ3a addresses the extent that service solution superiority results in customer based brand equity for PSFs. This research question is answered through hypothesis 7a.

The focus of RQ3b is on the effect of service solution superiority on firm based brand equity (market effectiveness and profitability). RQ3b addresses the extent that service solution superiority results in superior firm based brand equity for PSFs (This research question is answered through hypotheses 7b and 7c). To address RQ3b hypothesis 7b addresses the relationship between service solution superiority and market effectiveness and hypothesis 7c addresses the relationship between service solution superiority and profitability. These sub-research questions and hypotheses address the gap related to maintaining competitive market position. More specifically, the gap is related to the contribution of providing a superior service solution to enhancing brand equity in two broad forms - customer and firm based brand equity.

7.3.6.1. Discussion of hypothesis 7a

Hypothesis 7a focuses on brand equity block and states that service solution superiority is positively related to the PSF's customer-based brand equity. As shown in Table 6.20 (p. 201) service solution superiority is positively related to customer based brand equity ($\beta = 0.33$, t-value= 3.72), explaining 24% of the variance of customer based brand equity. The result shows any improvement in service solution superiority produces a corresponding improvement in the customer based brand equity that is positive and significant. These findings support the theoretical arguments made in Chapter Four that service solution superiority is positively related to customer based brand equity.

While previous research has not examined the effect of service solution superiority on customer based brand equity, there is some literature that can be drawn on to compare and discuss this finding. For instance, Chenet et al. (2010) believe in B2B relationship settings, customer trust and service differentiation mediates the relationship between three dimensions of service quality and customer commitment. In their model, service differentiation is the measure of customers' perception of the firm being consistently different on important attributes relative to its competitor's offerings. Their findings show that service differentiation fully moderated the relationship between service quality and customer commitment. Others however, have argued that in B2B relationships, customers prefer to stay with the firm to reduce the risk of wrong decisions associated with industrial purchases (Amonini et al. 2010; Jaakkola and Halinen 2006). Further, Bettencourt et al. (2002) raised the critical point of the difficulty of communication, arguing that as a customer's business needs are tacit, communicating tacit needs is difficult, and as such business customers will prefer to stay with the PSF who knows their business well. Similarly, Hitt et al. (2001) suggest that customers prefer to stay with a familiar PSF because evaluating the quality of the service even after purchasing is difficult.

Significantly, while the work of scholars such as Amonini et al. (2010), Jaakkola and Halinen (2006), Bettencourt et al. (2002), and Hitt et al (2001) allude to the view that service solution superiority results in customer commitment (here identified as customer based brand equity), such views have never been empirically substantiated. The findings of this study extend the contention by Amonini et al. (2010), Jaakkola and Halinen (2006), Bettencourt et al. (2002), and Hitt et al (2001) where the results show that a superior service solution does in fact contribute to stronger customer based brand equity.

However, while drawing on existing literature to discuss the results, this study also identifies key differences from the existing literature. It looks at customer commitment as indicator of customer based brand equity. Further, it assesses the direct effect of service solution superiority on customer based brand equity and validates the contention that a positive and significant relationship exists between service solution superiority and customer based brand equity. In addressing RQ3a, it appears that those customers who receive a superior service solution that matches their business requirements will remain with the PSF, and develop a strong pool of customer for the PSF who appreciate a long lasting relationship with the PSF. The result shows any positive changes and improvements in service solution superiority produces a corresponding change and improvement in the PSFs customer based brand equity.

7.3.6.2. Discussion of hypotheses 7b and 7c

Hypothesis 7b focuses on brand equity block, stating that the service solution superiority is positively related to the PSF's market effectiveness. As shown in Table 6.20 (p. 201) service solution superiority is positively related to customer commitment (CBBE) (β = 0.56, t-value= 6.66) and explains 33% of the variance of market effectiveness. The result shows any improvement in service solution superiority produces a corresponding improvement in the market effectiveness that is positive and significant.

Hypothesis 7c focuses on brand equity block and states that service solution superiority is positively related to a PSF's profitability. As shown in Table 6.20 (p. 201) service solution superiority is positively related to profitability (β = 0.42, t-value= 5.57). Further, the result shows that service solution superiority explains 20% of the variance in profitability. The result shows any improvement in service solution superiority produces a corresponding improvement in the profitability that is positive and significant.

While previous research has not examined the effect of service solution superiority on firm based brand equity, especially market effectiveness and profitability, there is some literature that can be drawn on to compare and discuss this findings. For instance, Fang et al. (2008) examined the effect of industrial services on firm value, this research is significantly different from their work, as it assesses the effect of service solution superiority on market effectiveness and profitability. Similarly, Eggert et al. (2011) and (2013) examined the effect of industrial services on profitability. The present study is different from the work of Eggert et al. (2011) and (2013), because they examined effect of industrial services on profitability in manufacturers transitioning from goods to services. However, the present study views service solution in a different manner and in a different context.

In answering RQ3b, it appears that service solution superiority does influence both customer and firm based brand equity. The result shows any improvement in service solution superiority produces a corresponding improvement in the market effectiveness and profitability.

7.3.7. Summary of answer to RQ3

Research question three focused on the consequences of providing superior service solutions, specifically focusing on two key outcomes for brand equity in the form of customer-based brand equity and firm-based brand equity. Overall, the findings show that service solution superiority significantly contributes to the development of customer and firm based brand equity. The findings show to develop and maintain their position in the market PSFs need to provide superior service solutions. In this sense, the PSF

will not only develop a committed pool of customers, but also enhance its financial performance as two equity based outcomes. Analysis of the results shows the contribution of service solution superiority to firm based brand equity is stronger than its effect on customer based brand equity. Analysis of the β shows that the β for market effectiveness, profitability, and customer commitment is 0.56, 0.42, 0.33 respectively, meaning that any improvement in service solution superiority produces a stronger corresponding improvement in market effectiveness compared to profitability and customer commitment.

7.4. Toward a theory of B2B professional service firms service solution model: Implications for theory and practice

The primary objective of this study as outlined in Chapter One, focused on providing superior service solutions that help PSFs to enhance brand equity and maintain a competitive market position. As outlined in Chapter One, Section 1.1, providing a superior service solution is a strategic weapon in the B2B PSF's quest to establish and maintain superior brand equity and a competitive market position (Jennings et al. 2006; Amonini et al. 2010). As PSFs have specific and unique organisational characteristics (e.g., knowledge intensity, highly expert employees and high level of customer cooperation) some have argued they require distinctive theories of management (Von Nordenflycht 2010; Fenton and Pettigrew 2006; Greenwood et al. 2005). Within this setting, the provision of superior service solutions and the development and maintenance of brand equity seemed to be a logical starting point to develop a theory of PSFs.

Following Von Nordenflycht (2010) taking account of the specific characteristics of PSFs four distinct blocks were considered to advance the literature and develop a more specific theory of PSFs. These four blocks are people management processes, knowledge management processes, service solution superiority, and brand equity. The interconnectedness of people management processes and knowledge management processes provided a foundation to develop a superior service solution that contributes to development of brand equity. The outcome of these relationships helps to develop PSF theory with the focus on providing superior service solutions and maintaining a competitive market position. The findings of this research contribute to knowledge in the areas of solution and specifically the service solution in the PSF context, PSF branding (e.g., brand equity, internal branding), PSF leadership, and PSF knowledge management, and as such a number of theoretical and practical implications merit acknowledgement and discussion.

7.4.1. Theoretical implications

The theoretical contributions of this research are presented based on the four blocks outlined originally in Figure 4.5 the "B2B professional service firms service solution model", and the hypotheses underpinning this framework detailed in Chapter Four, Sections 4.2.2 and 4.2.4. Given that service solution superiority is the core construct in this research, Section 7.3.1.1 introduces the contribution of this block to the literature. Section 7.3.1.2 outlines the contribution of the research located in the people management processes block. Section 7.3.1.3 outlines the contribution of the research located in the knowledge management processes block. Finally, Section 7.3.1.4 outlines the contribution of the research in the brand equity block.

7.4.1.1. Theoretical implications: Service solution

The literature review in Chapter Three, Section 3.3 outlined different views about solution and presented definitions and conceptualisations of solution. The discussion identified that while some researchers define solution from the firm perspective (e.g., Sawhney 2006; Foote et al. 2001), others focus on the customer view and believe the customers' perception of solution is different from the firm perception. Thus, within the literature two different approaches to define solution have evolved, one from the customer and the other from the firm perspective (Tuli et al. 2007; Galbraith 2002).

The literature review shows that the majority of researchers define solution in the manufacturing setting, and premise their definitions on the product being supported by some types of industrial services and define solution as a combination of product and/or service. For example, building on previous literature Evanschitzky et al. (2011) developed a definition of solution as "*Individualised offers for complex customer problems that are interactively designed and whose components offer an integrative added value by combining products and/or services so that the value is more than the sum of the components*"(p. 659). While the majority of researchers in the solution domain focus on the integration of products and/or services to define solution, other groups of researchers define it as a process. For example, Hakanen and Jaakkola (2012) define solution from firm perspective as a process that solution provider integrate its resources, knowledge, and information and Tuli et al. (2007) define solution from the customer perspective as a relational processes where the customer and the solution provider interact and produce and deliver the solution.

While this study acknowledges the positive contribution of previous researchers, it challenges some of the work by arguing that the process of solution provision is different from the output of the process, which is in fact a service solution. This

contention is built on the previous literature that shows the majority of researchers advance the view that the solution "*solves*" customers' business problems (Gebauer et al. 2013; Nordin and Kowalkowski 2010; Windahl and Lakemond 2010; Cova and Salle 2007; Pawar et al. 2009; Galbraith 2002; Miller et al. 2002; Foote et al. 2001). However, the process does not solve a customer problem, but the output of the process "*solves*" a customer's problem. This conclusion is built on the view of Edvardsson and Olsson (1996) who argue the outcome of the service process is what the customer actually receives and what the customer perceives. As such, this study contributes to the B2B solution and PSF literature by separating the cooperation between customer and PSF to provide the solution, from the output of that cooperation. The output as such is a service solution and the process is where the PSF integrates knowledge resources and people resources.

Further, application of existing definitions of solution developed for manufacturers who supplement their product with services seems problematic. Service solutions provided by PSFs are highly customised intangible services, based on the application of knowledge (Lovelock and Wirtz 2011). However, the level of customisation and intangibility of solutions in manufacturing seems not to be as high as the customisation and intangibility of service solutions in PSFs. Davies et al. (2007) propose the solution provider can provide a generic solution and then customise it based on a customer problem to increase their profitability. While the solution in manufacturing firms seen as the integration of products and/or service, solutions in PSFs are highly customised and intangible pure services. They are not reintegration of products and/or services.

To this end, the current study contributes to the solution and PSF literature by defining and studying service solution superiority in the PSF context. Service solution in the context of PSF is defined here as a customised service that meet a specific customer's non-standardised needs. Further, this study raises the contention that for PSFs to maintain their competitive market position, they have to provide superior service solutions to their customers, because this outcome provides a key driver to brand equity. Therefore, it deemed necessary to develop a definition of service solution superiority.

To develop a definition for service solution superiority the underlying premise was that of the multifaceted nature of service solutions. It is argued here that service solution superiority is embedded in a range of specific characteristics such as customisation (Gebauer et al. 2013; Miller et al. 2002), knowledge based (Von Nordenflycht 2010), and innovativeness that help meet a specific business customer's needs (Hogan et al. 2011). Two dimensions were considered here for service solution superiority - innovativeness and quality. These two dimensions are considered

important because the customisation aspect of service solution implies that each service is different and new, even for returning (existing) customers and the service solution should have high quality that addresses customer requirements and solve their problem. Therefore, the next contribution of this study for the solution and PSF literature is defining the superior service solution as the level of quality and innovativeness of customised a service solution provided to customers that meet a specific customers' non-standardised needs (built on the work of Hogan et al. 2011). Development of the definition of service solution superiority necessitated developing a measure that taps the two dimensions of service solution superiority. To date, there is no measurement developed to measure service solution in B2B PSF context. To this end, the next contribution of the study to the solution and PSF literature is developing a measure of service solution superiority. Considering the two dimensions of service solution superiority identified as quality and innovativeness, a measure was developed. To develop the measure the work of Tuli et al. (2007), O'Cass and Ngo (2010), Hogan et al. (2011), and Aarikka-Stenroos and Jaakkola (2012) was used. To sum up, this study contributes to the solution and PSF literature by defining solution, service solution superiority, and developing a measure of service solution superiority.

7.4.1.2. Theoretical implications: People management processes block

While branding in services, especially in the PSF context is becoming more important (Amonini et al. 2010), having a mechanism in place to develop brand values, promote them, and actualise them is critical. There are recent calls for more research in the branding literature by Leek and Christodoulides (2011) and Santos-Vijande et al (2013) who indicate that identifying internal company processes that generates consistent brand perceptions amongst employees is required to communicate consistent brand values to customers. This research addresses this call in the service branding literature and specifically does so in relation to PSFs. The contribution of this study is important as it focuses on identifying the path through which people management processes contribute to development of service solution superiority. This process was broken down to identify the role of brand oriented people involved in the service solution provision process and understand how each path impacts service solution superiority.

People management processes outlined within this study focus on three specific actors, playing specific roles throughout the service solution provision process. These people are leaders, employees, and customers. Regarding these actors and the roles they play three specific gaps were identified in Chapter One, Section 1.2.1 The first identified gap in people management processes was related to the role of customers in

the service solution provision process. The research specifically aimed to address how much cooperation with a customer is required and to what extent it improves the superiority of a service solution. Given that customer cooperation is the touch point where the PSF and the customer interact and cooperate to provide the service solution, it is a key platform for the PSF to present brand values to the customer and demonstrate those values to the customer by providing a superior service solution.

The second gap was about the extent that the PSF's CCSP throughout service solution provision process is facilitated by specific organisational mechanisms. The research specifically aimed to address how leadership style assists staff to become brand champions by adopting brand supportive behaviour. Finally, the third gap in this block was about identifying the role of employees in the relationship between leadership style and CCSP. The research specifically aimed to address the role of employees in providing brand consistent inputs into the CCSP enabling the PSF to provide superior service solutions to customers.

The service solution superiority is the promise the PSF makes to its customers, thus these gaps address how a PSF actualises its promises to customers. These relationships set within the people management processes, theorise EBBB as a key link between BSTFL and CCSP. Further, in relation to people related processes CCSP was seen as the key link between EBBB and service solution superiority, which is the delivery of the PSFs promise to its customers. These links provide an underpinning mechanism that links specific actors in the system through the branding philosophy.

People management processes as outlined in this study in the theoretical framework introduce a mechanism that provides brand values, casts brand values internally, encourages employee to behave in accordance with brand values, and help the PSF actualise brand values with the customer. This part of the research framework integrates several streams of literature, particularly, TFL theory, employee brand-building theorising, and relationship marketing with a specific focus on CCSP. As such, the findings related to each component in the people management processes block contributes to the literature.

Brand specific transformational leadership. The literature review presented in Chapter Three, Section 3.4.1 indicates that researchers studying solution argue that solution providers need to adopt a motivational leadership style to improve internal cohesiveness (Storbacka 2011, Fenton and Pettigrew 2006; Galbraith 2002). However, leadership research in the solution domain has given little, if any attention to the role of leaders as brand developers, and how their brand oriented management actions contribute to providing a superior service solution. This research is among the first to

examine the role of brand specific transformational leadership (BSTFL) in the PSF context and contributes to the solution literature and specifically PSF theory by introducing BSTFL as a driver of superior service solutions.

Given the lack of research on BSTFL within the solution and PSF domain, a general literature review of the leadership literature was undertaken in Section 3.7.2.1 as a starting point to develop the theory and related hypothesis in Chapter Four. Leadership theory and specifically transformational leadership (TFL) theory is a highly studied topic. The literature review in Chapter Three shows that TFL is context dependent and in different contexts researchers obtained different results. For example, Wallace and de Chernatony (2009) show that considerate leadership style (a part of TFL) does not affect job dissatisfaction in the grocery sector, but increases job dissatisfaction in the banking sector. As such, they conclude that considerate leadership style is context dependent. The analysis of the TFL literature in Section 3.7.2.1 showed that significant proportion of the research view TFL theory as driver of employee behaviour or performance (Gumusluoglu et al. 2013; Wallace et al. 2013; Punjaisri et al. 2013; Uen et al. 2010; Clark et al. 2009; Morhart et al. 2009; Liao and Cheung 2007). This literature has not focused widely on the effect of TFL on other organisational mechanisms and outputs. Among the research on TFL, the work of O'Cass and Sok (2012) is distinguished as they introduce TFL as an important driver of organisational output, such as customer value. While O'Cass and Sok (2012) view customer value as a promise the service firm makes to its customers, this research views service solution superiority as service brand promise, which is created through the CCSP platform that is supported by the input of brand values.

This research brings attention to BSTFL, as an extension and fundamental application of TFL theory in the B2B PSF context. The theory advanced here argues that a leader with strong brand vision and motivational approach to support the brand's values has a positive impact to the PSF's CCSP and provision of superior service solutions. For PSFs to have superior CCSP, employees need to provide brand supportive inputs into CCSP. This research studies CCSP from the firm perspective and introduces CCSP as a platform where the PSF and the customer cooperate to provide a service solution and the PSF actualises brand values and brand promises. To guide and encourage employees to provide such inputs the PSF needs a leader who articulates the brand's values and supports those brand values and encourages employees to act based on those values when engaging in the service solution provision process and in this sense employees must engage in brand building behaviour.

Employee brand building behaviour. Chapter One identified the call by some scholars to understand more about the antecedents and consequence of employee brand building behaviour (Baumgarth and Schmidt 2010). Further, the literature review presented in Chapter Three shows much of the research on EBBB has focused on the culture of the firm, particularly organisational socialisation (King and Grace 2012), brand knowledge (Baumgarth and Schmidt 2010) and brand knowledge dissemination across the firm (Baker et al. 2014). However, Morhart et al. (2009) narrow TFL theory and specifically focus on BSTFL as an antecedent of EBBB. However, this study differs from the work of Morhart et al. (2009), as it considers outcomes of BSTFL and EBBB, where Morhart et al. (2009) do not consider any consequences for EBBB. Importantly, the consequences of EBBB addressed in this research were about enhancing the extent PSF cooperate with the customer, which is not addressed in the literature yet.

Further, Morhart et al. (2009) consider EBBB as extra-role and in-role behaviour, specifically treating them in a separate fashion, while in this research EBBB was integrated within a construct encompassing both in-role and extra-role employee behaviour. Focusing on EBBB in an integrated sense encompassing in-role and extra-role behaviour is a distinguishing feature of this research. It is an important distinguishing feature because as the literature review in Chapter Three, Section 3.7.2.2, shows most research on EBBB focus on extra-role behaviour and neglect the effect of in-role brand building behaviour and no studies to date have focused on these issues in the PSF and solution setting. To this end, this research contributes to the literature by providing greater understanding of the application of EBBB in the development of relational processes, such as CCSP in PSFs actualisation of brand values in B2B context. This research advances the EBBB literature by showing employees act as brand champions to provide brand consistent values input through both in-role and extra-role brand building behaviour that drives PSFs' CCSP. Employees engage in such actions because they believe in the leader and enact the brand vision espoused by the leader. Thus, actualising brand values through employee brand building behaviour is a critical platform where a customer experiences the brand's values during CCSP.

Customer cooperation in service provision process. The content analysis presented on CCSP in Chapter Two, shows that CCSP has been a widely researched domain. In this domain, a range of antecedents of CCSP has been studied from both the customer and firm perspectives. For example, some of the antecedents of CCSP from the customer perspective identified in Chapter Two, Section 2.4.10.1 include customer commitment, satisfaction, and customer perceived identification (e.g. social identity) appear to be among the most studied antecedents of CCSP (e.g., So et al 2012;

Auh et al. 2007; Algesheimer et al. 2005; Groth 2005; Gruen et al. 2000). Other antecedents identified include cultural values and service locus of control (Büttgen et al. 2012; Schumann, et al. 2012), customer communication, client expertise, interaction justice, and customer socialisation (Chan et al. 2010). On the other hand, some of the antecedents of CCSP from the firm perspective identified include technical and non-technical innovation (Ngo and O'Cass 2010), application of ICT (Reay and Seddighi 2012), partner match, partner expertise, and customer affective commitment (Chen et al. 2011).

Overall, Chapter Two shows that CCSP from the firm perspective compared to the customer perspective has been studied in a much more limited fashion. Further, researchers have not paid any attention to employee behaviour and its role in CCSP. As such, the next contribution of this study to the CCSP literature is the application or identification of EBBB as a critical antecedent of CCSP. The findings of this study contribute to the literature by identifying CCSP as a platform that is driven by employees brand building behaviour and which support the delivery of a superior service solution. In this study, a key contribution is showing that employees are in a key position to provide input into the service solution provision process via CCSP. This input is effective when employees not only perform their duties, but also go beyond their responsibilities to demonstrate brand values in the CCSP.

Further, this study also contributes to the literature about the extent CCSP improves service solution superiority. The content analysis presented in Chapter Two identified that from the firm perspective CCSP does contribute to developing service quality (Ngo and O'Cass 2012). Further, a positive and significant relationship between CCSP and innovation was identified (Chien and Chen 2010). Given that service solution superiority is identified within this study as possessing two dimensions – innovativeness and quality, a key assumption in this study was that CCSP improves service solution superiority. Further, Chapter Three shows that in the solution literature the contribution of the customer in the provision of service solution is necessary. This is because customers are the main source of knowledge about their business needs that is not accessible form any other sources and is delivered to the PSF through CCSP.

However, at present the solution literature has not shown if the extent of CCSP in service solution provision process is actually beneficial for the firm. Further, in Chapter Four, Section 4.2.2.3 the potential drawbacks of CCSP in the provision of service solutions was raised and discussion advanced arguments for non-linear relationship between CCSP and service solution superiority. The drawbacks discussed in Chapter Four, Section 4.2.2.3 included increasing employee stress (Chan et al. 2010), increasing employees' work overload (Hsieh et al. 2004), decreasing the quality of

solution because of increasing uncertainty in service solution provision (Auh et al. (2007), and increasing the level of customer control over service solution provision (Miller 1986). Further, it was also noted these aspects can result in decreasing the timeline and cost of service solution provision (Ngo and O'Cass 2012). These disadvantages of CCSP may directly or indirectly affect service solution superiority.

The disadvantages of CCSP in the service solution provision process were a key motivation to understand the extent CCSP improves service solution superiority. In this study a key proposition advanced was that the effect of CCSP on service solution superiority is more complex than previously suggested and as such the study advanced arguments for an inverted U-shaped relationship between CCSP and service solution superiority. This research is among the first to examine a U-shaped relationship between CCSP and outcomes of it, which in this study is service solution superiority. Given the advantages and disadvantages of CCSP in the service solution provision process the findings of this research contribute to the literature by providing a greater understanding of the phenomenon. They theoretically address the dilemma faced by PSFs in understanding the role, benefits or drawbacks of CCSP in high contact knowledge based service firms by identifying the extent that the firms' efforts in CCSP is beneficial.

The findings contribute to both the solution and CCSP literature by providing evidence that in the B2B PSF context, the superiority of service solutions is enhanced when the PSF cooperates with the customer at a high level throughout CCSP, such as goal settings, idea generation, and technical problem solving. As a PSF offers service solutions that are highly customised and personalised, a low level of CCSP decreases the superiority of service solutions due to lack of cooperation and exchanging customer's business requirement. The findings of this research contribute to the literature by showing that the more PSFs cooperate with customers, the more they increase the superiority of the service solution.

The last contribution of the study to the CCSP literature is in developing a measure for CCSP in PSFs. Content analysis of the literature on CCSP in Chapter Two shows that the borders among different measures of CCSP are not well defined. Further, it was shown that most existing measures of CCSP are restricted to providing some information to the firm by the customer or participating in some activities to produce the service. In the B2B PSF context CCSP in the service solution provision is extensive and encompasses different issues such as business decision making, solution option identifications, and technical decision making. As current measures in the literature did not tap these specific features, it was necessary to develop a measure that taps the specific nature of cooperation between the PSF and its customers. To do so,

the work of Menon et al. (2005), O'Cass and Ngo (2010 and 2012), and Agarwal and Selen (2009) were used to develop a new measure for CCSP in PSF context. The psychometric properties of these constructs were robust. As can be seen in Table 6.11, all factor loadings for CCSP construct were high ranging from 0.56 to 0.94, greater than the recommended level of 0.50. The composite reliability (0.92) and average variance extracted (0.76) were high, greater than the recommended level of 0.70 and 0.50 respectively. This information validated the developed measure.

7.4.1.3. Theoretical implications: Knowledge management processes block

Although knowledge is identified as the most important input into the service solution provision process (Aarikka-Stenroos and Jaakkola 2012; Von Nordenflycht 2010; Greenwood et al. 2005), yet there is a debate in the current literature about the benefits of different types of knowledge, particularly deep and broad knowledge (Chae 2012; Jensen et al. 2012) (see discussions in Chapter Three, Section 3.4.2.1). Regarding these types of knowledge and the roles they play in the provision of superior service solutions, two specific gaps were identified in Chapter One, Section 1.2. The first gap identified in knowledge management processes is about the debate around the application of broad knowledge in B2B PSF context. This research specifically aimed to address whether broad technical knowledge helps or hinders a PSF's ability to provide a service solution superiority and if broad customer knowledge helps or hinders CCSP. The second gap identified in knowledge management processes alludes to the importance of knowledge assimilation across the PSF. The research specifically aimed to address whether knowledge assimilation is more beneficial when the PSF engages in broad knowledge or deep knowledge.

The literature supports the view that deep customer knowledge is necessary to understand *what* solution should be prepared for the customer (Miller et al. 2002, Empson 2001). Further, deep technical knowledge is necessary to understand *how* the service solution should be provided to solve business customer's problem (Jaakkola and Halinen 2006; Greenwood et al. 2005; Maister 1993). However, at present there is no empirical evidence that addresses whether broad technical and customer knowledge helps or hinders a PSF's ability to provide customised service solutions, or improve the capacity to cooperate with customers. Recently, Chae (2012) argues that PSFs should have knowledge beyond their expertise field. However, Jensen et al. (2012) shows PSFs do not appreciate acquiring knowledge beyond their needs to provide solutions for customers. This study picked up on this contradiction and proposed that both deep and broad technical knowledge is necessary to develop a superior service solution, but the

effect of deep and broad technical knowledge on service solution superiority are an inverted U-shaped relationship (see hypotheses 4a and 4b). Even though the hypothesised relationships were not confirmed, the results contribute to solution literature, especially in the B2B PSF context.

While support for the these hypotheses were not found the results shows the relationship between deep/ broad technical knowledge and service solution superiority is a positive U-shape, meaning the more knowledge they hold the more superior service solution they provide. The findings contribute to the solution literature in the context of PSFs by showing excessive deep technical knowledge in PSF does not lead to organisational inertia and broad technical knowledge does not lead to distraction from selecting appropriate pieces of broad technical knowledge. The findings contribute to the solution and B2B PSF literature by showing high levels of both deep and broad technical knowledge leads to a superior service solution. Increasing the levels of both deep and broad technical knowledge may decrease the superiority of service solutions up to a certain level, but after that point both deep and broad technical knowledge improves the superiority of service solutions. However, the effect of both deep and broad technical knowledge on service solution is higher when the PSF engages highly in both deep and broad technical knowledge and apply them to provide superior service solutions. Interestingly, these findings provide evidence that in the context of knowledge intensive service firms, PSFs should engage in the acquisition of both deep and broad technical knowledge to provide superior service solutions. In particular, the study finds that the relationship between service solution superiority and deep and broad technical knowledge is only significant at moderate to high levels and not at lower levels of deep and broad technical knowledge.

Further, the study proposed that both deep and broad customer knowledge are necessary to develop CCSP (see hypotheses 5a and 5b). These relationships were confirmed and thus contribute to the literature. The findings contribute to the solution literature and specifically PSF literature by showing that both deep and broad customer knowledge improves the service solution superiority through CCSP. As CCSP is the platform where the customer and the PSF cooperate to produce a superior service solution, customer knowledge come into the service solution through the CCSP platform. In other words, CCSP is the bridge between both deep and broad customer knowledge and service solution superiority. The contribution of the study on the effect of deep and broad customer knowledge on CCSP is interesting in the sense that while the PSF needs to have deep customer knowledge to cooperate because of the customised nature of service solutions, broad customer knowledge acts stronger than deep customer knowledge on CCSP. The results presented in Table 6.20 shows that the β for the

relationship between broad customer knowledge and CCSP is as twice as the β for the relationship between deep customer knowledge and CCSP (0.43 compare to 0.21). This result is very interesting as it shows the effect of broad customer knowledge should not be discounted in B2B PSF settings.

The second gap identified in knowledge management processes highlights the importance of knowledge assimilation across the PSF, which leads to the last contribution of this block. The last contribution of the study in relation to knowledge management processes and solution in the PSF context is the examination of the effect of knowledge assimilation on different types of knowledge in knowledge intensive service firms such as PSFs. This study responds to the call by Lettice et al. (2014) on developing a mechanism to improve knowledge dissemination within PSFs. This study builds on the work of Zhou and Li (2012) to examine the differential effects of knowledge assimilation on deep and broad knowledge. This study advances our knowledge about employing a mechanism that facilitates understanding broad knowledge by showing the extent that knowledge assimilation is more or less beneficial in influencing the relationship between broad technical knowledge and superior service solution or deep technical knowledge and superior service solution (see H6a). Further, the study shows that knowledge assimilation is more beneficial to the relationship between broad customer knowledge and CCSP or deep customer knowledge and CCSP (see H6b)

These findings contribute to the solution literature, specifically in relation to PSFs and solution provision by introducing knowledge assimilation as a critical mechanism that has the capacity to facilitate the PSF's understanding of broad knowledge. Broad technical knowledge is more likely unfamiliar to the PSF (and its employees), and therefore discussions, meetings and internal communications would open up new ways to understand its difficult aspects. The findings further show that knowledge assimilation is more beneficial to the relationship between broad technical knowledge and service solution superiority, rather than the relationship between deep technical knowledge and service solution superiority. Likewise, knowledge assimilation is more beneficial to the relationship between broad customer knowledge and CCSP rather than the relationship between deep customer knowledge and CCSP.

The findings advance the solution and PSF literature by showing that knowledge assimilation is always beneficial. The result show that the path between deep technical knowledge and service solution superiority as well as the path between deep customer knowledge and CCSP are not significant, but they are still positive. These findings tell us contrary to what is reported in the product domain, there is no harmful aspects to sharing knowledge and exchanging ideas inside the PSF. For example, in the product domain, De Luca and Atuahene-Gima (2007) found negative moderation effect of

knowledge assimilation on deep knowledge and new product performance, while this research found positive moderation effect of knowledge assimilation. As such, these findings extend our knowledge that in service contexts, specifically PSFs, indicating knowledge assimilation is always beneficial.

7.4.1.4. Theoretical implications: Brand equity block

The content analysis on CCSP presented in Chapter Two, identified specific consequences of CCSP from both customer and firm views. It appears that the research focusing on the firm perspective has largely focused on the effect of CCSP on diverse forms of performance. Such performance has included market success (Jacob 2006), sales performance (Eisingerich et al. 2013), service performance (O'Cass and Ngo 2010), financial performance (Ngo and O'Cass 2012; Chien and Chen 2010), process performance in new service development (Chien and Chen 2010), project performance (Wang et al. 2013), and innovation (Reay and Seddighi 2012; Chen et al. 2011). Interestingly, the content analysis represented evidence of contradictory findings in relation to performance and CCSP. For instance, while Ngo and O'Cass (2012) reported no significant relationship between CCSP and financial performance, Eisingerich et al. (2013) found a positive relationship between CCSP and objective sales performance. However, Ngo and O'Cass (2012) believe the effect of CCSP on financial performance occurs through the mediation role of service quality. Likewise, Peled and Dvir (2012) suggest it is the characteristics of the project that determine the effect of CCSP on project performance and Melton and Hartline (2010) introduce marketability of a new service as a driver of the relationship between the CCSP and service firms' financial performance. In picking up on these results focusing on the importance of CCSP on performance, the gap in the brand equity literature is related to the role of CCSP in driving the PSF's brand equity. This research specifically aimed to address whether service solution superiority transmits the effect of CCSP into the PSF's brand equity. As such, this research contributes to the CCSP literature by introducing service solution superiority as the bridge between CCSP and brand equity.

This study took a comprehensive view in examining the effect of CCSP on brand equity. Brand equity is important because it is recognised as one of the most important intangible assets for firms (Santos-Vijande et al 2013; Rust et al. 2004); especially in service firms (Brodie et al. 2006). Brand equity determines PSFs' competitive market position. Building on Ngo and O'Cass (2012), the theory developed in Chapter Four raised the contention that service solution superiority is a mediational mechanism between CCSP and brand equity (see H7a, H7b, and H7c). The focus on brand equity

is important, especially when breaking it down into the two focal forms adopted in this study – customer-based and firm-based brand equity.

The findings contribute to the solution literature, relationship marketing literature with a specific focus on CCSP, and PSF research by identifying the contribution of CCSP to developing brand equity through the provision of a superior service solution. CCSP increases the chance of providing a superior service solution. When the customer obtains the sought after solution and gains what they expect from the PSF in that solution, they are more likely to stay with the PSF, pay for the service solution, and provide positive word of mouth about the PSF, thus increasing both customer and firm based brand equity for the PSF. Further, CCSP decreases the cost of providing a service solution because of customer resources are shared (customers resources include expertise and knowledge) with the PSF and the PSF does not need to spend money and time to provide those resources. As customers invest in their relationship with the PSF by sharing their resources they stay with the firm, thus; increasing both customer and firm based brand equity.

Further, this study contributes to the solution literature and service branding literature, especially in the PFS domain by proposing superior service solution as a strong weapon to maintain brand equity and consequently a competitive market position. Superior service solutions increase brand equity, because customers who receive superior service solution that solves their problem will stay with the PSF and create a constant cash flow to the PSF. Enhancing and maintaining a competitive market position is challenging for PSFs because any and all service solutions can be considered as a new service due to the customisation nature of the service solutions. Further, in the PSF domain it is very difficult to assess the quality of the service solution even after consumption. Therefore, maintaining brand equity and a competitive market position can be challenging. The findings of this study confirm this proposition and contribute to the literature by showing that a service solution which addresses customer's business requirements increases brand equity in terms of both customer based brand equity and firm based brand equity.

7.4.2. Summary of theoretical implications

This study contributes to the literature by introducing service solution superiority as a multifaceted phenomenon to solve customer problems and create strong brand equity. To be able to provide such a service solution and maintain strong brand equity, two specific processes labelled people management processes and knowledge management processes are identified as contributing to the service solution provision process. There

are three active actors involved in people management processes to provide appropriate inputs in the service solution provision process. These people are leaders, employees, and customers. The inputs leaders and employees provide are valuable, because they are consistent with brand values and inject brand values into service solution provision process. In fact, these people are brand oriented, as they live the brand and its values and behave in accordance to those values. Brand oriented people successfully provide inputs into service solution provision process through CCSP process, because they have a clear idea of brand values and apply those values in their daily activity. Within people management processes, brand oriented people demonstrate brand values in the CCSP platform and perform their job based on brand values.

The performance of brand-oriented people on providing a superior service solution is coupled with the deep and broad customer and technical knowledge. While it is reported in PSF literature that broad knowledge is not appreciated, the findings of this study contribute to the literature by showing that the effect of broad technical and customer knowledge is stronger than deep technical and customer knowledge on service solution superiority and CCSP. To overcome the problem of unfamiliarity of PSFs with broad knowledge, they may use knowledge assimilation as a mechanism to understand more complex, less familiar broad technical and customer knowledge. When the PSF deploys its knowledge management processes and people management processes effectively, they will provide a superior service solution. Doing this, they will enjoy a stronger competitive market position by enhancing brand equity.

Table 7.1 shows the summary of research questions, hypotheses underpinning each research questions and the contribution of each research question to the literature.

Table 7-1
Summary of research questions and contributions

Block	General RQs	Specific RQs	Hypotheses	Contribution
People management processes	*RQ1- To what extent do people management processes impact service solution superiority in PSFs?*	**RQ1a.** *To what extent does brand specific transformational leadership influence employee brand building behaviour in PSFs?* **RQ1b.** *To what extent does employee brand building behaviour influence cooperating with customers in the PSFs?* **RQ1c.** *To what extent does cooperation with the customer improve service solution superiority in the PSF?*	H_1: BSTFL is positively related to the PSFs' employee brand building behaviour. H_2: Employee brand building behaviour in PSFs' is positively related to CCSP H_3: CCSP has an inverted U-shaped relationship with the PSFs' service solution superiority.	The best inputs into service solution superiority are those that are aligned with brand values. As such, brand oriented people are in a better position to provide appropriate inputs into service solution superiority. Brand oriented inputs are transferred to service solution superiority through the platform of CCSP. In the PSF context, a very high level of CCSP exponentially increases the superiority of service solution.
Knowledge management processes	RQ2- *To what extent do knowledge management processes impact service solution superiority in PSFs?*	**RQ2a.** To what *extent do the levels of broad and deep technical knowledge influence service solution superiority in PSFs?* **RQ2b.** *To what extent does the broad and deep customer knowledge influence cooperation with the customer in PSFs?* **RQ2c.** *To what extent does knowledge assimilation affect the strength of the relationship between technical knowledge and service solution superiority in PSFs?* **RQ2d.** *To what extent does knowledge assimilation affect the strength of the relationship between customer knowledge and CCSP in PSFs?*	H_{4a}: Deep technical knowledge has an inverted U-shaped relationship with the PSFs' service solution superiority. H_{4b}: Broad technical knowledge has an inverted U-shaped relationship with the PSFs' service solution superiority H_{5a}: Deep customer knowledge is positively related the CCSP. H_{5b}: Broad customer knowledge is positively related to CCSP. H_{6a}: Knowledge assimilation is more beneficial in providing superior service solutions when the PSF possess broad technical knowledge than possessing deep technical knowledge. H_{6b}: Knowledge assimilation is more beneficial in driving CCSP when the PSF possess broad customer knowledge than possessing deep customer knowledge.	Both deep and broad customer and technical knowledge are important to develop CCSP and service solution superiority. Excessive deep technical knowledge would not result in inertia and excessive broad knowledge would not result in distraction form providing superior service solution in PSF context. However, the contribution of broad technical and customer knowledge in development of service solution superiority and CCSP is more than deep technical and customer knowledge. Further, knowledge assimilation always plays a positive role in PSF context, but it is significantly important when the PSF engages in broad knowledge compare to deep knowledge.

Continue: Table 7-1
Summary of research questions and contributions

Block	General RQs	Specific RQs	Hypotheses	Contribution
Brand equity	RQ3- *To what extent does service solution superiority impact brand equity in PSFs?*	**RQ3a.** *To what extent does the service solution superiority contribute to the development of customer based brand equity in PSFs?* **RQ3b.** *To what extent does the service solution superiority contribute to the development of firm based brand equity in PSFs?*	H_{7a}: The service solution superiority is positively related to the PSF's customer-based brand equity. H_{7b}: The service solution superiority is positively related to the PSF's market effectiveness. H_{7c}: The service solution superiority is positively related to the PSF's profitability	CCSP is an important determinant of brand equity, but its effect is through superiority of service solution. Superior service solution, which encompasses two dimensions of innovative and quality, is a strong determinant of both firm based brand equity and customer based brand equity. However, its effect is stronger on firm based brand equity.

7.4.3. Managerial implications for professional service firms

This research holds important implications for managers. A superior service solution requires careful management of people and knowledge management processes to achieve strong brand equity. Failure to manage people management processes and knowledge management processes can result in providing inferior service solution and consequently weaker competitive market position and weaker brand equity will be achieved. Further, this research has implications for B2B customers that may help them to make more reliable purchase decisions of solutions and choose solution providers.

7.4.3.1. Managerial implications: Service solution superiority

The first managerial implication of this study is derived from the block focusing on service solution superiority. It is confirmed here, that if the PSF develops a superior service solution, they can enhance their brand equity and competitive market position. Managers are advised to be mindful of considering two dimensions of service solution superiority identified here as innovativeness and quality. If managers do not consider these two dimensions, they may fail to customise the service and meet business customers' needs and requirements. A service solution that exactly addresses B2B customer's need should have high quality, otherwise the PSF fails to solve customers' problem. Further, if the solution lacks innovative features and is copied from one customer to the other, it might not be customised to each customer's specific problem. As such, these two dimensions are critical to provide non-standardised, customised service solutions to give the PSF the best chance to achieve stronger brand equity.

7.4.3.2. Managerial implications: People management processes block

The second aspect of managerial implications of this study is derived from the block focusing on people management processes. Given that branding is an important issue for PSFs, this study introduces a mechanism or a set of principles that managers can adopt that help develop brand values, train employees to support those brand values, and a platform to actualise brand values and successfully provide a superior service solution which results in strong competitive market position. This study assists PSF managers to identify and cultivate brand oriented leaders and employees involved in the service solution provision process who have a clear idea of the brand's values and apply those values in their in-role and extra role behaviour. Brand oriented leaders and employees demonstrate brand values in the CCSP process and perform their job based on the brand's values, and therefore they are more likely to provide superior service

solutions to customers. Enacting this mechanism and a set of principles will support the efforts to deliver superior service solutions and create brand equity if managed well.

The focus on people management processes raises the application of transformational leadership to establish a mechanism that develops brand values and implement brand consistent behaviours to actualise the brand values inside the PSF. To have brand oriented service staff, managers of PSFs are advised to develop a clear brand vision, brand mission, brand values, and revise those values on continuous basis. Simultaneously, mangers are advised to mentor and encourage employees to learn the brand's values and apply them in their work routines and interactions with customers. The best approach that managers can apply to instil the brand vision and brand values to employees is respecting those values and illustrating those values in their own behaviours. The findings show a path for managers to encourage, stimulate, and support employees to adopt the brand's values. The path or trigger for this process is adopting a brand specific transformational leadership style as guiding management philosophy in PSF service solution businesses. If managers adopt a brand specific transformational leadership style, employees will learn to behave consistently with those values and support those values through their behaviours. In this sense, employees not only consider those values in their prescribed duties, but also engage in extra role and volunteer behaviours as part of their EBBB. When employees engage in extra role behaviour they come up with new ideas and do more than their responsibilities to support those brand values. These employees report issues that may enhance or damage brand to their manager aiming to enhance the brand image in customers' mind.

Managers should be aware that through training and mentoring of brand specific transformational leadership style, employees will become brand champions and provide appropriate input into the CCSP process and enhance the PSF's CCSP in more efficient ways. Managers are advised that CCSP is a platform where customers experience the brand first hand and where the brand's values and promises become self-evident to customers. Therefore, a sound managerial approach would be to provide appropriate guidance, encouragement and support service employees to clearly understand what needs to be accomplished to strengthen the brand and support the CCSP process. If managers mentor employees to apply those values in their encounters with customers they will be well equipped to provide appropriate input into the CCSP process and support the delivery of superior service solutions.

Beyond training and educating service employees to support brand values, managers are advised that business customers are the best source of knowledge about their business needs and customers have valuable resources that can benefit the service solution provision process and as such, customers should be encouraged to

share their resources and engage in the CCSP process fully. These resources include their expertise knowledge, market knowledge, and knowledge about their own business and needs. These resources can assist the PSF in the service solution provision process to provide a superior service solution. Managers are advised to maximise the advantage of CCSP to not only provide superior service solution, but to develop and maintain their brand equity. While many have argued that the customer's presence in service provision may interfere in the service solution provision process, it is not as hazardous as managers may believe or have been led to believe. If the PSF and customer cooperate less, they lose the opportunity of having the necessary resources that underpin solution provision and may damage the superiority of the service solution. As such, the key success in CCSP is learning how much cooperation is enough to provide superior service solution.

Further, the findings of this study have some implications for B2B customers of PSFs. B2B customers of PSFs are advised to closely cooperate with the PSF to maximise the chance of receiving a superior service solution that exactly addresses their business requirements. B2B customers should be aware that a lack of cooperation with the PSF results in an inferior service solution. B2B customers may feel they waste their time and other resources if they cooperate with the PSF, but this cooperation pays off when they receive a superior service solution.

7.4.3.3. Managerial implications: Knowledge management processes block

The third managerial implication of this study is derived from the block focusing on knowledge management processes. With regard to both customer knowledge and technical knowledge, the PSF should track deep and broad customer and technical knowledge, which have differing impacts on CCSP and service solution superiority. Managers are advised to avoid focusing on deep knowledge, but developing a rich pool of broad knowledge in both customer and technical domain. Broad technical and customer knowledge appear to be important factors in providing a superior service solution, as well as developing CCSP. Acquiring broad technical and customer knowledge might be time consuming and decrease the billable time of professionals in PSF, but it worth it. Managers are advised that broad knowledge brings new ideas and its effect on the superiority of service solution and CCSP is stronger than deep technical and customer knowledge. Managers of PSFs need to appreciate the point that the effect of broad technical knowledge on service solution superiority is complex. If the PSF possesses a small amount of broad knowledge, such knowledge provides little

benefit. A PSF gains the benefit of broad knowledge when they possess high levels of broad knowledge.

Further, it is worth reminding managers about the importance of CCSP in transferring customer knowledge into service solution provision process. CCSP is a bridge between customer knowledge and service solution superiority. Customer knowledge is necessary to customise the service and move to service solution superiority from the channel of CCSP. Thus, managers are advised to develop high levels of CCSP to facilitate movement of customer knowledge to service solution superiority.

Managers of PSFs should be aware that knowledge assimilation and knowledge management are important to facilitate understanding of complex knowledge across the PSF. Further, knowledge assimilation enhances the effectiveness of both customer and technical knowledge on service solution provision process. Managers of PSFs are advised to encourage knowledge assimilation, as its effect on both types of knowledge and their different dimensions are always positive.

7.4.3.4. Managerial implications: Brand equity block

The fourth managerial implication of this study emanates from the block focusing on brand equity. Managers of PSF are advised to invest time, knowledge, and their human resources on provision of superior service solution, as this is the most appropriate way to maintain a competitive market position. To provide superior service solutions managers should carefully manage the knowledge process and people processes across the PSF. Managers should be aware that a service solution, which is superior in quality and innovative has an inherent ability to help them maintain their competitive market position. The provision of a service solution is a strong reason for customers to prefer the PSF over competitors and establish a long term relationship with the PSF. If PSFs provide a service solution which is superior in quality and innovativeness, customers will pay for it and the PSF may reach financial goals, consequently establishing strong customer based brand equity and firm based brand equity.

Further, managers should be aware of the importance of CCSP to establish brand equity. Managers may have a belief that customers interfere in the service solution provision process and their contribution in the provision of a service solution is detrimental to ensuring the superiority of the solution. However, this study's findings also show that CCSP significantly contributes to providing a superior service solution. However, managers should be aware that the effect of CCSP on superior service solution is complicated and required careful management. Managers should know that

the positive effect of CCSP on superiority of service solution occurs when the PSF is highly engaged in CCSP. Importantly, at low levels of CCSP, the superiority of service solution is negatively affected. This shows keeping the customer outside the service solution provision process is detrimental to service solution outcomes. Moreover, managers are advised that CCSP indirectly improves brand equity. Therefore, the findings of this research suggest PSFs should engage in activities that encourage CCSP across their firm with all those engaged in the service solution provision process. The indirect effect of CCSP on brand equity indicates that managers need to be mindful of what specialised skills and knowledge the PSF expects customers to bring into the CCSP process and how best to manage them.

Further, B2B customers should be aware that sustainable financial performance of a PSF is a strong signal to tell customers their services are reliable. B2B customers can rely on PSF with high brand equity and high financial performance and decrease the risk of purchasing inappropriate service solutions. This is possible by talking to other customers and looking at financial statement if they are available.

7.4.4. Summary of managerial implications

Managers are advised to work toward developing the mechanisms outlined in the key blocks of the theoretical framework "B2B Professional service firms service solution model". Mangers are advised to:

- adopt brand supportive leaders ship style to encourage staff to become brand advocates,
- cooperate with their customers to increase the quality and innovativeness of service solution,
- focus on utilising both customer and technical knowledge,
- expand their knowledge pool in both dimensions of deep and broad knowledge to be able to provide superior service solutions to customers,
- facilitate the application of broad knowledge by having knowledge assimilation mechanisms in place,
- provde superior service solutins to their customers to enhace their brand eqity.

7.5. Limitations and future research

The goal of this research was to better understand how PSFs provide superior service solution and elucidating the role of superior service solution in maintaining PSF's competitive market position by focusing on people management processes and

knowledge management processes. Although this study offers insight into the complex interaction of people and knowledge management processes within knowledge intensive PSFs, this study has specific limitations that need identifying and which open avenues for further research.

First, measurement error is an inherent limitation of any research that uses a questionnaire where multiple variables are included. Nevertheless, reliability and validity of all constructs were checked to reduce measurement error (see also Slotegraaf and Atuahene-Gima 2011; Fuchs 2009; Podsakof et al. 2003). The process of designing the questionnaires in order to decrease measurement error was extensively discussed in Chapter Five and the study followed well established procedures.

Second, the data for this research are cross-sectional rather than longitudinal. This occurred because the short-term period of the PhD which does not allow longitudinal research. Although cross-sectional research prevents testing causality, the researcher does not believe that common method bias is a serious concern in the study (see also Slotegraaf and Atuahene-Gima 2011). In addition to the efforts the researcher took in the research design to validate the measures, the statistical tests for common method variance did not reveal any problems. The use of multiple key informants also reduces the problem of possible common method variance. Further, it is clear that a cross-sectional research design does not offer the same insight into the dynamics of CCSP, service solution superiority, and brand equity. As such, a natural extension of this study would be to deploy longitudinal research designs to empirically confirm causality and assess outcomes of the research model over time. A longitudinal perspective provides a comprehensive exploration of the customer commitment, market effectiveness, and profitability consequences of superior service solutions.

Third, CCSP here is considered from the firm perspective and measured the extent PSFs cooperate with their customers. Future research may consider CCSP from both the firm and customer perspectives to gain a better insight of the consequences of CCSP. Due to inherent limitations of PhD such as time and funding constraints this research could not employ dyadic research. Given the benefits dyadic research possesses such as decreasing self-bias and common method bias, future studies are recommended to apply this type of research.

Fourth, the researcher relied on data from a sample of Taiwanese firms, which therefore limits the generalisability of the results. Specifically, scholars have identified several cultural differences among countries. In collectivist cultures, such as Taiwan people may have a different view to cooperation or act differently through cooperation process compare to those countries that dominant culture is individualism. Thus, the extent to which these results differ from a sample in more individualist cultures is a fertile

area for further research. Moreover, the findings of this research might not be applicable in developing or emerging economies, because they do not have the same infrastructure or service priority as Taiwan. Therefore, future research may examine the proposed theoretical framework in emerging economies and compare the findings and results against those found in this study.

Fifth, the measure of brand equity (both customer and firm based brand equity) is a subjective measure. As such, the results are limited to managers' perception in measuring of their brand equity (customer based brand equity and firm based brand equity). Future research could address this limitation by pursuing additional measures such as measuring customer based brand equity from the customer perspective and measures of firm based brand equity incorporating objective measures. Objective measures determine the stability of the result (Eggert et al. 2014). Moreover, customer based brand equity in the B2B context is an under researched topic, future research may identify other measures of customer based brand equity that are applicable in the B2B context, especially for PSFs.

These limitations are discussed to acknowledge their existence and to offer opportunities for future research. Importantly, they do not pose a threat to the study, or render the findings of this study less valid or diminish the contribution of the study.

7.6. Conclusion

The rapid changes in markets and strong competition has been increasingly driving many industrial and B2B firms to purchase service solutions from PSFs. PSFs are argued to be different from other types of firms, because of their specific organisational characteristics and the nature of their offerings. The convergence between the special characteristics of PSFs and environmental changes has resulted in both business opportunities and challenges in providing superior service solutions to customers and maintaining strong brand equity and a competitive market position. Given the distinguishing features of PSFs, many scholars argue PSFs need distinctive theories of management.

To contribute to the development of theory focusing on PSFs, this study adopted the view that providing a superior service solution to maintain brand equity is a starting point in an effort to developing a theory of PSFs. Developing superior service solution and maintaining strong brand equity is achieved through understanding and managing the interplay of people and knowledge management processes. The argument raised here is that when a PSF manages people and knowledge they are likely to be more capable of providing a superior service solution and consequently better positioned to

achieve stronger brand equity and maintain a competitive market position. However, providing superior service solution and maintaining strong brand equity is both critical, yet challenging for PSFs, because of the customised nature of the service solution and difficulty of assessing the quality of the service solution even after consumption.

To develop theory relating specifically to PSFs, the theoretical framework the "B2B Professional service firms service solution model" developed in this study focused on very specific constructs. These constructs, were technical knowledge (deep and broad), customer knowledge (deep and broad), knowledge assimilation, brand specific transformational leadership, employee brand building behaviour, CCSP, service solution superiority, customer based brand equity (customer commitment), and firm based brand equity (market effectiveness and profitability). These were set within the theoretical framework within the notion of people and knowledge management processes and brand equity blocks intersecting at the point of service solution superiority. By theorising and validating the proposed theoretical framework, this study makes a significant contribution to theory and practice. The study contributes to the solution and specifically service solution literature within the domain of PSFs, PSF branding (e.g., brand equity, internal branding), PSF leadership, and PSF knowledge management.

The study significantly contributes to the PSF literature by introducing and mapping an internal mechanism that focuses on people management processes. It is well established in the literature that people are the service firm's brand and as such people management processes are actually brand oriented people management processes. Brand oriented people aim to develop the brand and brand values inside the PSF and encourage behaviours among employees which are consistent with brand values. The people management process mechanism, guides brand oriented service employees in how to interact and cooperate with customers to maximise the successful provision of a superior service solution.

Apart from the importance of brand-oriented people in providing a superior service solution, the importance of knowledge, especially knowledge management process was considered to provide superior service solutions and maintain brand equity. This study shows both deep and broad knowledge is important in this context. Since such knowledge was viewed as underpinning the ability to solve customer problems, it is now shown clearly that each type differentially drives PSFs solution outcomes, but critically this is impacted by the ability to utilise assimilation as a specific organisational mechanisms to optimise the benefits gains from each type of knowledge. Given the distinctive nature of PSFs and service solution it is concluded that the confluence of knowledge types and dimensions and knowledge assimilation as a key organisational mechanisms that helps optimise the utilisation of knowledge and their influence on the

service solution provision process and solution outcomes may be more complicated than in other industries.

To sum up, the argument of this study is that the provision of service solutions results in strong brand equity and competitive market position by PSFs is both a unique and challenging phenomenon in comparison to both commercial goods firms and most service firms. The knowledge based, customised nature of a service solution makes it vastly different to commercial products and most service firms who develop a single product or service for a standardised market and refine or redevelop it on an irregular basis. Solutions are unique and novel, because every customer has a unique problem that needs a unique solution. As such, to satisfy a customer's need, every solution should be customised specifically for each customer in regards to their business requirement. Due to the uniqueness and novelty of each solution PSFs should engage in an ongoing (and never ending) cycle of creating a new offering for each and every customer. This cycle is repeated even for returning customers, because the nature of a customer's problems will change over time due to evolving customer demands driven by environmental changes and the complexity of businesses. Therefore, a PSF should be prepared to solve new problems even for existing customers to keep them satisfied and loyal. The knowledge intensive, customised and unique nature of service solutions pushes PSFs to accumulate, improve, and protect valuable knowledge and branding processes to develop and deploy a unique service solutions that maximise brand equity.

While this research directed its attention to develop a theory of PSFs focusing on people and knowledge processes impact on service solution provision and brand equity, there are still more avenues for researchers to pursue in an effort to develop theory in the PSF domain. Given the growing importance of PSFs in the world economy, this study closes by noting the view of Greenwood et al. (2005):

> *The sheer importance of professional service firms in the modern economy justifies efforts to understand them. Given the distinctive tasks performed by PSFs it is not surprising that they confront unusual managerial challenges. These characteristics and challenges, moreover, undermine the relevance of theory generated from other types of organisations.*
>
> Greenwood et al. (2005), p. 671

APPENDIX I

Information Sheet

THE UNIVERSITY OF TASMANIA AUSTRALIA

Survey A

A Framework for Service Solution Provision in Professional Service Firms: Transforming Brand Oriented People and Knowledge Oriented Processes into Superior Service Solution and Brand Equity

Attention to:

We invite you to participate in a study investigating how professional service firms work with customers to increase PSFs brand equity. The research focuses on the procedures and business processes professional services use to provide customized solutions to their customers. This project is a part of PhD research being carried out by ***Vida Siahtiri*** and supervised by ***Professor Aron O'Cass*** of the Tasmanian School of Business & Economics at the University Of Tasmania (UTAS) and ***Dr. Nima Heirati*** of the school of Business at the University of Newcastle -UK.

The aim of this study is to examine the role of specific resources and capabilities that professional service firms use to create superior service solutions with their customers. The outcome of this study will provide insights into professional services in relation to cooperating with customers to increase brand equity.

You have been identified as an eligible participant for this research study during an initial telephone discussion with ***Vida Siahtiri*** recently. You indicated an interest in participating, and that your firm is a professional service firm serving business customers (other businesses). By accepting to receive the survey package (including this survey and this information sheet) and completing the Survey, your consent to participate in this study will be assumed. While we would appreciate your participation, we respect your right to withdraw at any stage without having to provide any reason. If you are a woman and pregnant, please consider withdrawing from completing the survey if you feel discomfort or distressed. Please let us assure you that there will be neither specific risks anticipated by participating in this study nor consequences for you if you decide not to participate or withdraw at any stage.

In this study, we do not wish to identify participants specifically and all provided information as well as your responses will be kept confidential. We only seek the name of your nominated senior manager for Survey B and C to allow us to provide them the information sheet and Survey B and C in the survey package. This is sought to allow them the opportunity to consider the study and if they wish to participate without any coercion. Please note that, no firms' names will ever be published and are not kept as part of this research.

If you decide to participate and assist us in this study, please consider the following tasks that we ask you to undertake:

1- Please read and complete the ***Survey A***. It will take about 20-25 minutes of your time.
2- Please answer the questions based on your own knowledge and experience.
3- Please nominate two of your senior managers who has been involved with marketing or customer relationship management, service operations or a similar role.
4- Please write down his/her name, position, and contact details (Telephone number) in provided space in question A1 in ***Survey A***. We will contact him/her directly.
5- Please put the survey in the envelop supplied after completing it and make sure to seal it firmly.
6- Please call *3 6226 7119* when you are ready for your survey to be collected so we can make an appointment to collect back ***Survey A*** from you.
7- If we do not hear from you within 14 days we will call you back and make an appointment to collect the package from your office at a time convenient to you.

Please note all the surveys that are obtained as part of this study will be kept securely in the office of ***Professor Aron O'Cass at the University of Tasmania and will be destroyed (shredded) after a period of five years***. Please feel free to contact ***Vida Siahtiri*** (email: vida.siathtiri@utas.edu.au) if you would like to receive a summary of the study six months after the date you return your completed survey. We are pleased to answer any questions related to the study and discuss any issue that you are concerned about.

Research team constitute of *Professor Aron O'Cass* professor of marketing, from *Tasmanian School of Business & Economics*, *Dr. Nima Heirati* lecturer in marketing from *Business School University of Newcastle-UK*, and *Vida Siahtiri* PhD student from *Tasmanian School of Business & Economics* University of Tasmania. This study has been approved by the Tasmanian Social Sciences Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study, please contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. Please quote ethics reference number [H12306]."

You can keep this information sheet for future reference and our contact details.

We again appreciate considering this study.

Professor Aron O'Cass
Professor in Marketing
Tasmanian School of Business & Economics (TSBE)
University of Tasmania
Ph (int + 61) 03 6226 7432
Aron.OCass@utas.edu.au

Dr. Nima Heirati
Lecturer in Marketing
Adjunct Lecturer TSBE Business School
University of Newcastle
Phone: +44 191 208 1589
Nima.Heirati@newcastle.ac.uk

Vida Siahtiri
PhD Candidate
Tasmanian School of Business & Economics
University of Tasmania
Tel: (int+61) 3 6226 7119
Vida.siahtiri@utas.edu

APPENDIX II

Questionnaire A

THE UNIVERSITY OF TASMANIA AUSTRALIA

Thank you for your valued assistance, we value your time as we are fully aware how busy you are.

We appreciate you spending 25-30 minutes of your time to complete this survey. Your experiences and knowledge are important. Please, do not hurry as your accurate responses ensure your time is well served. Please answer the questions based on your own knowledge and experience. We will collect surveys within 7 days from your office at a time convenient to you

A1. Would you please nominate two of the senior managers in your firm to fill out survey B and C? "Marketing manager" or "Sales Manager" can complete survey B and "Customer Relationship Manager" or "Service Operations Manager" may fill out survey C.

Candidate No. 1 to fill out survey B:

His/ Her name is:_____

His/ Her contact details are:_____

His/ Her position is:_____

Candidate No. 2 to fill out survey C:

His/ Her name is:_____

His/ Her contact details are:_____

His/ Her position is:_____

CD1 – This company has been established for _____ years.

CD2 – This company has _____employees.

CD3- My designated title is: _____.

CD4 – Our sector service is: _____

The following statement refers *your own understanding and knowledge of your firms' strategies and business operations.* Please circle the number below that best reflects your views								
A	I am knowledgeable about my firms' business operations, strategies, characteristics, business processes, performance, and business environment (competitors, regulations, and the like).	1 Not At All	2	3	4	5	6	7 Very Much So

The following statements *focus on communication inside your firm*. Please circle the number that best reflects your view.

Our firm uses…		Never used						Widely used
KAS1	regular formal reports and memos that summarise learning.	1	2	3	4	5	6	7
KAS2	information sharing meetings as a communication tool.	1	2	3	4	5	6	7
KAS3	face-to-face discussions by cross-functional teams.	1	2	3	4	5	6	7
KAS4	formal analysis of failing service development projects.	1	2	3	4	5	6	7
KAS5	formal analysis of successful service development projects.	1	2	3	4	5	6	7
KAS6	experts and consultants to synthesize knowledge.	1	2	3	4	5	6	7

The following statements are about your *employee role in enhancing your brand*. Please circle the number that best suits your view.

In our firm our employees….		Not at all						As often as possible
EXBB 1	tell their supervisor about ways to strengthen our brand image.	1	2	3	4	5	6	7
EXBB 2	make constructive suggestions on how to improve our customers' brand experience.	1	2	3	4	5	6	7
EXBB 3	share useful ideas on how to improve our brand's performance.	1	2	3	4	5	6	7
EIBB1	pay attention to ensure that their actions in customer contact situation are not at odds with our standards for brand-adequate behaviour.	1	2	3	4	5	6	7
EIBB2	adhere to our standards for brand-congruent behaviour	1	2	3	4	5	6	7
EIBB3	adhere to our standards of behaviour that are consistent with our brand image.	1	2	3	4	5	6	7

The following statements *focus on your firm's business*. Please circle the number that best reflects your view.

During past two years, in our business environment….		Strongly Disagree						Strongly Agree
ET1	the technological environment was very complex.	1	2	3	4	5	6	7
ET2	predicting the actions of competitors was extremely difficult.	1	2	3	4	5	6	7
ET3	customers' needs were highly unpredictable.	1	2	3	4	5	6	7
ET4	technological changes were very unpredictable.	1	2	3	4	5	6	7
ET5	the market environment was very dynamic.	1	2	3	4	5	6	7
ET6	the market environment was highly competitive.	1	2	3	4	5	6	7

Company demographics

CD5 - I am _____ years old.

CD6- My Gender is: Male Female

CD7 - I have been working in my current position for _____ years and specifically in this firm for_____ years.

CD8 - My previous position was _____and I was in that position for _____ years.

CD9 - Please tick the box below for your highest educational level:

☐ High School ☐ Undergraduate ☐ Post Graduate ☐ Others _____

THANK YOU FOR YOUR COOPERATION AND VALUED HELP

APPENDIX III

Questionnaire B

THE UNIVERSITY OF TASMANIA AUSTRALIA

Thank you for your valued assistance, we value your time as we are fully aware how busy you are.

We appreciate you spending 25-30 minutes of your time to complete this survey. Your experiences and knowledge are important. Please do not hurry as your accurate responses ensure your time is well served.

The following statement refers *your own understanding and knowledge of your firms' strategies and business operations.* Please circle the number below that best reflects your views

A	I am knowledgeable about my firms' business operations, strategies, characteristics, business processes, performance, and business environment (competitors, regulations, and the like).	**1 Not At All**	2	3	4	5	6	**7 Very Much So**

Please circle the number that best represents your views about your firm's knowledge of its industry and markets.

Our firm`s …		**Strongly Disagree**						**Strongly Agree**
BCK1	customer knowledge is extensive (broad, wide-ranging).	1	2	3	4	5	6	7
BCK 2	customer knowledge consists of distinctive customer characteristics.	1	2	3	4	5	6	7
BCK3	customer knowledge is broad covering many issues.	1	2	3	4	5	6	7
BEK1	technical knowledge of our service industry is extensive (broad, wide-ranging).	1	2	3	4	5	6	7
BEK3	service development expertise consists of knowledge from a variety of backgrounds.	1	2	3	4	5	6	7
Our firm has…		**Strongly Disagree**						**Strongly Agree**
BCK4	acquired customer knowledge with different purchase profiles and purchase behaviour patterns.	1	2	3	4	5	6	7
DCK1	gathered a large amount of customer information to help identify our high-value customers.	1	2	3	4	5	6	7
DCK 2	established a thorough understanding of customers' lifetime value.	1	2	3	4	5	6	7
DCK3	gathered detailed knowledge about the appropriate channels to reach customers.	1	2	3	4	5	6	7
DEK1	gathered detailed knowledge about technical issues in our industry.	1	2	3	4	5	6	7
DEK2	gathered detailed technical knowledge about our industry.	1	2	3	4	5	6	7

The following statements focus on *your firm's working with its customers*. Please circle the number that best reflects your view.

In our firm we		To a very little extent						To a very large extent
CCSP 1	engage customers to evaluate and align our service offering attributes to customer needs.	1	2	3	4	5	6	7
CCSP 2	partner with the customer to make the customer's service experience more memorable.	1	2	3	4	5	6	7
CCSP 3	work together with our customers to produce offerings that mobilise them.	1	2	3	4	5	6	7
CCSP 4	make important technical decisions jointly with customers to enhance our relationship.	1	2	3	4	5	6	7
CCSP 5	jointly decide with customers on the goals and objectives for our relationship.	1	2	3	4	5	6	7
CCSP 6	jointly solve technical problems with customers.	1	2	3	4	5	6	7

The following statements are about *how your firm operates*. Please circle the number that best reflects your view.

In our firm we		Strongly disagree						Strongly Agree
SS1	ensuring customers' personal preferences are satisfied.	1	2	3	4	5	6	7
SS2	delivering quality services.	1	2	3	4	5	6	7
SS3	delivering services that are exactly what customers want.	1	2	3	4	5	6	7
SS4	delivering services with innovative performance features.	1	2	3	4	5	6	7
SS5	provide our clients with services that offer unique benefits superior to those of competitors.	1	2	3	4	5	6	7
SS6	solve clients' problems in very innovative ways.	1	2	3	4	5	6	7
SS7	provide innovative ideas to clients.	1	2	3	4	5	6	7
SS8	present innovative solutions to our clients.	1	2	3	4	5	6	7
SS9	seek out novel ways to tackle problems.	1	2	3	4	5	6	7
SS1	ensuring customers' personal preferences are satisfied.	1	2	3	4	5	6	7

Please evaluate the performance of your business over the past 2 years.

In thinking about our objectives, we have achieved our …		Not at all						Extensively
ME1	objectives in relation to market share growth relative to competitors…	1	2	3	4	5	6	7
ME2	objectives in relation to growth in sales revenue…	1	2	3	4	5	6	7
ME3	objectives in relation to acquiring new customers…	1	2	3	4	5	6	7
ME4	objectives in relation to increasing sales to existing customers…	1	2	3	4	5	6	7
PR1	objectives in relation to enhancing firm profitability…	1	2	3	4	5	6	7
PR2	objectives in relation to reaching financial goals …	1	2	3	4	5	6	7
PR3	objectives in relation to enhancing sales of firms…	1	2	3	4	5	6	7
PR4	objectives in relation to reaching sales objectives…	1	2	3	4	5	6	7

Company demographics

CD1- My designated title is: _____

CD2 - I am _____ years old.

CD3 - My Gender is: Male Female

CD4 - I have been working in my current position for _____ years and specifically in this firm for_____ years.

CD5 - My previous position was _____and I was in that position for _____ years.

CD6 - Please tick the box below for your highest educational level:

☐ High School ☐ Undergraduate ☐ Post Graduate ☐ Others _____

APPENDIX IV

Questionnaire C

THE UNIVERSITY OF TASMANIA AUSTRALIA

Thank you for your valued assistance, we value your time as we are fully aware how busy you are.

We appreciate you spending 25-30 minutes of your time to complete this survey. Your experiences and knowledge are important. Please do not hurry as your accurate responses ensure your time is well served.

The following statement refers *your own understanding and knowledge of your firms' strategies and business operations.* Please circle the number below that best reflects your views

A	I am knowledgeable about my firms' business operations, strategies, characteristics, business processes, performance, and business environment (competitors, regulations, and the like).	**1 Not At All**	2	3	4	5	6	**7 Very Much So**

The following statements are about your *firm brand leadership style*. Please circle the number that best suits your view.

	In our firm our CEO…	**Not at all**						**Frequently, if not always**
TFL1	reexamines critical assumptions of our brand promise to question whether they are appropriate.	1	2	3	4	5	6	7
TFL2	seeks differing perspectives when interpreting our corporate brand value.	1	2	3	4	5	6	7
TFL3	suggests a brand promoter's perspective of looking at how to complete assignments.	1	2	3	4	5	6	7
TFL4	talks optimistically about the future of our corporate brand.	1	2	3	4	5	6	7
TFL5	talks enthusiastically about what needs to be accomplished to strengthen our corporate brand.	1	2	3	4	5	6	7
TFL6	articulates a compelling vision of our corporate brand.	1	2	3	4	5	6	7
TFL7	goes beyond self interest for the good of the corporate brand.	1	2	3	4	5	6	7
TFL8	lives our corporate brand in ways that build my respect.	1	2	3	4	5	6	7
TFL9	displays a sense of power and confidence when talking about our corporate brand	1	2	3	4	5	6	7
TFL10	specifies the importance of having a strong sense of our corporate brand.	1	2	3	4	5	6	7
TFL11	talks about our most important brand values and his/her	1	2	3	4	5	6	7

	belief in them.							
TFL12	emphasizes the importance of having a collective sense of our brand mission.	1	2	3	4	5	6	7
TFL13	spends time teaching and coaching me in brand-related issues.	1	2	3	4	5	6	7
TFL14	treats me as an individual rather than just one of many members of our company brand.		1	2	3	4	5	6
TFL15	considers me as having different needs, abilities, and aspirations from other members of our company brand.		1	2	3	4	5	6

The following statements *focus on the customer loyalty and commitment to your firm*. Please circle the number that best reflects your view.

Our interpretation of our customers interactions with us and our understanding of our customers indicate that…		**strongly Disagree**						**Strongly Agree**
CC1	they put long term cooperation with us before their short term profit.	1	2	3	4	5	6	7
CC2	they are not doing business with another customer at our expense.	1	2	3	4	5	6	7
CC3	they are not collaborating with another customer at our determent.	1	2	3	4	5	6	7
CC4	their current collaboration with us is a part of a long term relationship.	1	2	3	4	5	6	7
CC5	they are willing to invest time and money to develop their relationship with us.	1	2	3	4	5	6	7

Company demographics

CD1- My designated title is: _____

CD2 – I am _____ years old.

CD3 - My Gender is: Male Female

CD4 - I have been working in my current position for _____ years and specifically in this firm for_____ years.

CD5 - My previous position was _____and I was in that position for _____ years.

CD6 - Please tick the box below for your highest educational level:

☐ High School ☐ Undergraduate ☐ Post Graduate ☐ Others _____

THANK YOU FOR YOUR COOPERATION AND VALUED HELP

APPENDIX V

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